NATIONAL RESOURCES AND RESERVES REPORTING COMMITTEE OF TÜRKİYE (UMREK)

THE NATIONAL PUBLIC REPORTING OF EXPLORATION RESULTS, MINERAL RESOURCES AND MINERAL RESERVES CODE OF TÜRKİYE (THE UMREK CODE)

FEBRUARY 2023
ANKARA

FOREWORD

The National Public Reporting of Exploration Results, Mineral Resources and Mineral Reserves Code of Türkiye (the UMREK Code) designates the minimum standards, recommendations, legal requirements and practice principles for reporting Exploration Targets, Exploration Results, Mineral Resources and Mineral Reserves within the Republic of Türkiye with the purpose of adequately informing investors and other stakeholders. This Code is related to the public reporting related to Exploration Results, Mineral Resources and Mineral Reserves required by BİST, BDDK and SPK (see the list of acronyms in Appendix 12).

UMREK was founded by the amendment of Article 14 to the Mining Law 3213 by passing of the Law 6745 on the date of August 20th, 2016. The working principles and procedures of the Committee was regulated by the "By-Law of the National Resources and Reserves Reporting Committee" which became effective on the date of July 26th, 2017. As specified in the By-Law, the Committee consists of members from MAPEG, MTA, BDDK, TBB, SPK, BİST, TOBB and representatives drawn from the Turkish minerals industry and related non-governmental organizations.

This document is the second version of the UMREK Code. The first version of the UMREK Code was issued in May 2018 and prepared in accordance with CRIRSCO Reporting Template 2013. This 2023 edition of the UMREK Code supersedes the previous version editions and standards. The consistency of the UMREK Code with the CRIRSCO International Template has been approved by CRIRSCO. In addition, this Code has been accepted by institutions such as SPK, BDDK, TBB, BİST and TOBB. This Code is binding for all the members certified by professional organizations recognized by UMREK.

The international organization having the purpose of developing and promulgating consistent reporting standards worldwide is CRIRSCO and this code conforms with the CRIRSCO (2019) Template and CRIRSCO standard definitions, which are consistent with the best reporting practices of the CRIRSCO member countries in the world and which are a guideline for other countries to establish their own codes.

The Standard Definitions in the UMREK Code are:

Purpose and use of the UMREK Code

The purpose of the UMREK Code is to provide a minimum standard for the public reporting of Exploration Targets, Exploration Results, Mineral Resources or Mineral Reserves in accordance with international terminology. Such reporting must contain all information that investors and their professional advisers would reasonably require, and reasonably expect to find in a Public Report, for the purpose of making of a reasoned and balanced judgement regarding the Exploration Targets, Exploration Results, Mineral Resources or Mineral Reserves being reported. The Code is advisory only, and where a national legal regulation exists, the regulation will take precedence.

From this point forward, the Code includes words and affixes that imply a mandatory action, such as 'requires', 'applies', 'must' etc. Purpose of this aforementioned use is to enable the Code to be adopted by institutions and organisations and does not imply that the Code itself is a mandatory reporting standard.

The UMREK Code is open to periodic reviews and re-assessment to ensure the improvement of the Code. Such revisions will be published at www.umrek.com.tr web site.

Copyright

Contents

1. INTRODUCTION

Format

Code

1.1 In this version of the Code, definitions are provided as numbered articles in **bold** typeface and clearly identified as definitions.

1.2 The definitions are a core element of the UMREK Code and common to all national or regional codes and standards based on the CRIRSCO Template.

1.3 Defined terms where referred to in other definitions are underlined.

1.4 Other mandatory elements of the UMREK Code, in normal typeface and as numbered articles, are similarly identified.

1.5 The guidelines and further interpretation of the definitions and mandatory articles are placed after the respective Code items in italic typeface and are clearly identified. They provide assistance and guidance to readers for interpreting the application of the definitions and articles in the Code.

1.6 Throughout the Code, certain words are used in a general sense when a more specific meaning might be attached to them by particular commodity groups within the industry. To avoid unnecessary duplication, the generic terms are listed in Appendix 1 together with other terms that may be regarded as synonymous for the purposes of this Code.

Guidance

The use of a particular term in this Code does not imply that it is preferred or necessarily the ideal term in all circumstances. Different terms may be used in some countries or for particular industry sectors. A typical example is where 'mining' is referred to as 'quarrying' when dimension stone and aggregates are involved. When reporting of Exploration Results, Mineral Resources and Mineral Reserves, Competent Person should use the ideal term that will be most familiar to the mining sector in Türkiye.

Code

1.7 Appendices 3 to 12 provide further guidance and detail on the application of the Code to the reporting of specific commodities or situations.

1.8 UMREK, with the purpose of maintaining the standards and controlling their use, has put Table 1 into force. With regards to the information in the relevant articles in this table, the Competent Person needs to explain the information in accordance with the principles of transparency and materiality. If there is no information about the related article, then Competent Person should also declare that there is no information provided and give the reason. Therefore, Table 1 provides a check list by referring to the criteria to be considered by the Competent Person in the preparation of public reporting and supporting documents.

Guidance

'If not, why not?' means that each item listed in the relevant section of Table 1 must be discussed or the Competent Person must explain why it has been omitted.

Code

1.9 Table 1 is included in the Code as an example of best practice and as always Transparency, Materiality and Competence are overriding principles that determine what information should be publicly reported. The Competent Person must provide sufficient comment on all matters that may affect a reader's understanding or interpretation of the results or estimates being reported.

1.10 Table 2 and Appendix 1 include additional guidance. Table 2 provides a qualitative description of the basis for and range of expected accuracies for capital and operating cost estimates relative to the three study levels, namely Scoping Studies, Pre-Feasibility Studies, and Feasibility Studies. Scoping Studies are mining studies at a conceptual level and may be used to identify options for project development and to define and support future work programs to enable conversion of Mineral Resources to Mineral Reserves, whereas the more comprehensive Pre-Feasibility and Feasibility Studies are used to support declaration of Mineral Reserves.

2. SCOPE

Application

Code

2.1 The Code applies to all solid mineral raw materials, specified in Mining Law, No. 3213, for which public reporting of Exploration Targets, Exploration Results, Mineral Resources and Mineral Reserves is required by any relevant regulatory authority.

Definition

2.2 **A Mineral is any substance, extracted for its economic value, occurring naturally in or on the Earth, in or under water or in tailings, residues or stockpiles, having been formed by or subjected to a geological process but excludes, water, oil and gas.**

Code

2.3 The definition of Mineral is broad, and therefore the Code is applicable to a diverse range of commodities for which public reporting of Exploration Targets, Exploration Results, Mineral Resources and Mineral Reserves is required by a relevant regulatory authority, including but not limited to:

- Metalliferous minerals;
- Coal;
- Diamonds and other gemstones;
- Industrial Minerals;
- Cement feed materials and construction raw materials;
- Dimension Stone, Ornamental and Decorative Stone
- Other mineral raw materials; and
- Mineralised fill, remnants, pillars, low grade mineralisation, stockpiles, dumps and tailings (remnant materials).

2.4 In addition, the principles of the Code are applicable to:

- Oil shales, oil sands and other energy minerals extracted by mining;
- Metallic or non-metallic minerals extracted by solution mining methods; and
- Minerals extracted from liquid brines.

Principles

Code

2.5 The principles governing the operation and application of the UMREK Code are Transparency, Materiality and Competence.

2.6 The principle of *Transparency* requires that the reader of a Public Report is provided with sufficient information, the presentation of which is clear and unambiguous, so as to understand the report and not to be misled.

2.7 The principle of *Materiality* requires that a Public Report contain all the relevant information which investors and their professional advisers would reasonably require, and reasonably expect to find in a Public Report, for the purpose of making a reasoned and balanced judgement regarding the Exploration Targets, Exploration Results, Mineral Resources and/or Mineral Reserves being reported.

2.8 The principle of *Competence* requires that the Public Report be based on work that is the responsibility of a suitably qualified and experienced person (referred to herein as a Competent Person) who is a member of a PO with an enforceable code of ethics and disciplinary process, which includes the powers to suspend or expel a member.

Public Reports

Definition

2.9 **Public Reports are reports prepared for the purpose of informing investors or potential investors and their advisers on Exploration Targets, Exploration Results, Mineral Resources or Mineral Reserves. They include annual and quarterly company reports, media releases, information memoranda, technical papers, website postings and public presentations and are not limited to those specified or listed herein.**

Code

2.10 Public Reports include but are not limited to company annual reports, quarterly reports and other reports to regulatory authorities, or as required by law.

2.11 The reporting and disclosure requirements addressed in the Code apply equally to all publicly released company information in the form of postings on company web sites, social media, press releases and briefings for shareholders, stockbrokers and investment analysts.

2.12 The Code also applies to any reporting of Exploration Targets, Exploration Results and/or Mineral Resources and Mineral Reserves and made publicly available for other purposes, such as those contained in:

- Environmental statements;
- Information memoranda,
- Expert Reports; and,
- Technical papers.

Guidance

Of particular concern should be postings made using social media where it may be inferred that the information being released comprises a Public Report.

Note that any or all such Public Reports may also be for the purpose of satisfying regulatory requirements.

Code

2.13 For companies issuing annual reports, or other periodic summary reports, all material information relating to Exploration Targets, Exploration Results, Mineral Resources and Mineral Reserves should be included.

2.14 In cases where summary information is presented, the Public Report must clearly state that the information is a summary, and a reference must be provided giving the source and location of the Code-compliant Public Reports or public reporting on which the summary is based.

2.15 The Public Report must include sufficient context and cautionary language to allow a reasonable investor to understand the nature, importance, and limitations of the data, interpretations, and conclusions summarised in the report.

Guidance

Public Reports may be submitted to the National Resources and Reserves Reporting Committee of Türkiye (UMREK), Capital Markets Board of Türkiye (SPK), Banking Regulatory and Supervisory Board of Türkiye (BDDK), Banks Association of Türkiye (TBB), Istanbul Stock Exchange (BİST), Union of Chambers and Commodity Exchanges of Türkiye (TOBB), and to professional organizations or to other institutions as required.

Companies may also prepare and submit reports to other institutions and organizations other than aforementioned ones or other regulatory jurisdictions. Therefore, in such circumstances, an explanation should be added to the report. To avoid confusion and to the extent possible, companies are encouraged to prepare reports that are in accordance with the UMREK Code.

As companies may need to submit reports to more than one regulatory jurisdiction, some of the submitted reports may be non-compliant with the UMREK Code. Reports of such nature must contain a statement alerting the reader to this situation. Where Competent Persons must issue reports that are based on different standards or guidance, they are obliged to comply with the standards of the organization receiving the report.

Reference in the Code to 'documentation' is to internal company documents prepared as a basis for, or to support, a Public Report.

It is recognised that documentation prepared by Competent Persons (refer to Article 3.6) for internal company or similar non-public purposes may not necessarily comply with the definitions, requirements and guidance contained in the Template. In such situations, it is recommended that the document include a prominent statement to this effect. This will make it less likely that non-compliant documentation will be used to compile Public Reports.

Although the Code could take into account all possible situations that may be encountered in Public Reports, on occasion doubts may arise about the appropriate form of disclosure to be made in accordance with the Code and Table 1. In such cases, those availing of the Code and those compiling the reports and adopting the Code need to act in line with the principles of the Code. The underlying purpose is to provide the minimum standards for public reporting and to ensure that such reports contain all necessary relevant information according to the Code. The Competent Person should prepare reports consistent with the principles of the Code to the investors and their advisers in a form that permits them to reach a reasonable and balanced judgement including risks and opportunities regarding the Exploration Results, Mineral Resources or Mineral Reserves.

Estimation of Mineral Resources and Mineral Reserves is inherently subject to some level of uncertainty and inaccuracy. Considerable skill and experience may be needed to interpret pieces of information, such as geological maps and analytical results based on samples that commonly only represent a small part of a mineral deposit. The uncertainty in the estimates should be discussed in documentation and, where material, in Public Reports, and reflected in the appropriate choice of Mineral Reserve and Mineral Resource categories.

Guidance

A Public Report should be adequately supported by legible text, figures, tables, sections, and maps to demonstrate competence by conveying material information in a transparent manner. Figures of any type should contain appropriate explanatory information in the form of titles and/or captions, and legends.

Code

2.16 The Code does not cover valuation or appraisal from a business perspective. It provides for the description of Exploration Targets, Exploration Results and estimates of Mineral Resources and Mineral Reserves that may be used by others to prepare subsequent valuations or appraisals.

Reporting General

Code

2.17 Public Reports concerning a company's Exploration Targets, Exploration Results, Mineral Resources and/or Mineral Reserves must include a description of the style and nature of mineralisation.

2.18 Any relevant information concerning a mineral deposit including material changes to the Mineral Resources or Mineral Reserves that could materially influence the economic value of the deposit must be disclosed. Companies, at least once a year, must review the Mineral Resources or Mineral Reserves they own or control or have them reviewed independently and publish a related public report. When publishing the updated Mineral Resources and Mineral Reserves, companies must specify all the material changes made to the previously reported Mineral Resources and Mineral Reserves.

2.19 Table 1 must be considered persuasive in determining and documenting relevant information that is material.

2.20 The effective date and the publication date indicating the latest status of the Mineral Resources and/or Mineral Reserves should be indicated in the public reporting

2.21 A company's economic interest in a project must be declared.

2.22 Where Mineral Resources and Mineral Reserves are estimated for multiple properties, they may be aggregated for reporting purposes, particularly if the properties are located in close proximity or their products are sent to common treatment plants or markets. The principles of transparency and materiality govern aggregation for reporting purposes.

2.23 Where multiple ownership is involved, it must be made clear what proportion of the reported Mineral Resources and Reserves in which the company has an interest.

2.24 Companies may have several different mineral exploration and operation projects, such that it is impractical to appoint a different Competent Person for each project to prepare a report. In such cases, it is advised that a Competent Person reviews the mineral assets of a company and provides an assessment of the appropriate level of aggregation or 'accounting unit' to be used in all subsequent reporting of the company's Mineral Resources and Reserves.

Guidance

When reviewing the mineral assets to determine materiality, the Competent Person should consider both the size and number of assets in establishing the appropriate level of aggregation. There may be individual mining assets having disproportional contribution to all Mineral Resources or Mineral Reserves acquired from the company, and such assets need to be taken into consideration by the Competent Person for a separate reporting.

Guidance

Reporting could also be on the basis of aggregation of mineral properties. For example, a multinational company may operate on a number of continents and/or with more than one line of business (cement, aggregate, clay construction products) therefore, may wish to indicate Mineral Resources and Reserves based on the geographical regions and/or divide the commodities related to these lines of business reflecting the regional structure of the company.

Code

2.25 A Company may disclose an estimate reported previously in accordance with a CRIRSCO-compliant standards/codes other than UMREK Code, that was prepared by a person or persons other than the Competent Person preparing the disclosure, if the conditions listed below are met:

- The date and identified source of the previously reported estimate is specified,
- The relevance and reliability of the previously reported estimate are provided,
- The previously reported estimate states whether the estimates have used categories other than those used in Article 4.1 of the UMREK Code, and if so, provides an explanation of the differences,
- The disclosure contains a cautionary statement to indicate that such an estimation cannot be combined with any other estimations and cannot be accorded the status of approval by the Competent Person, and
- The disclosure contains more recent estimates or the current data available to the company.

Guidance

This condition allows for the disclosure of estimates produced by the same or a different company, using the same or other reporting codes, and including the situation where the previous Competent Person (if any) is no longer available to authorize the new disclosure.

3. COMPETENCE AND RESPONSIBILITY

Code

3.1 The company is responsible for appointing the Competent Person or Persons and establishing the Competent Person or Persons meet the requirements set forth in Article 3.6.

A Public Report concerning a company's Exploration Targets, Exploration Results, Mineral Resources and/or Mineral Reserves is the responsibility of the company acting through its Board of Directors. Any such report must be based on, and fairly reflect the information and supporting documentation prepared by or under the direction of and signed by a Competent Person.

3.2 Documentation detailing Exploration Targets, Exploration Results, Mineral Resource and Mineral Reserve estimates, on which a Public Report on Exploration Targets, Exploration Results, Mineral Resources and Mineral Reserves is based, must be prepared by, or under the direction of, and signed by, a Competent Person or Persons.

The documents prepared by the Competent Person constitute the basis of public reporting and therefore the Competent Person's name shall appear in the report.

Public reporting or the attached statement should bear the company of the Competent Person or the name of the employer; data contained in the report should follow a certain form and content, and the Competent Person should consent to this in the form and context in which it appears. To demonstrate compliance, the relevant articles of the Code (see Appendix 2) should be referenced.

The documentation must provide a fair representation of the Exploration Targets, Exploration Results, Mineral Resources or Mineral Reserves being reported.

3.3 A company issuing a Public Report shall make publicly available the name(s) of the Competent Person(s). This information must include whether the Competent Person is a full-time employee of the company, and, if not, name the Competent Person's employer, and the relationship with the company.

Any other relationship between the Competent Person and the company must be disclosed. In the case where the Competent Person or Competent Person's immediate family hold shares, bonds or right of purchase and franchise documents issued by the company and where there is a direct or indirect relationship between the company and the Competent Person, this relationship must be disclosed. Such a statement must be included in the section where the Competent Person provides his written consent (see Appendix 2).

A possible conflict of interest between the Competent Person or the relevant party needs to be disclosed as per the Transparency principle.

3.4 The issue of a Public Report requires the written consent of the Competent Person(s), prior to release of the report, as to the form and context in which it appears.

3.5 The company must provide to the Competent Person(s) the company's public disclosure of information prepared by the Competent Person(s) and seek approval for its context and the use of the Competent Person's name in connection with that disclosure. Reasonable time must be allowed for the Competent Person(s) to review the public disclosure prior to making their decision.

The forms for the compliance statements are given in Appendix 2.

With the purpose of assisting the Competent Persons and companies to conform to these requirements, a Competent Person's consent form containing the requirements of the Code has been given in Appendix 2.

Code

The company and Competent Person must maintain availability of all types of other evidences regarding the Competent Person's consent form or written consent. The purpose here is to ensure that written consent can be acquired quickly if required.

Definition

3.6 **A Competent Person is a minerals industry professional registered to an appropriate member grade of a RPO (see Appendix 10) with enforceable disciplinary processes, including the powers to suspend or expel a member, and that has been certified by UMREK with a Certificate of Competence.**

The Competent Person must have a minimum of seven years' relevant experience in the style of mineralisation or type of deposit under consideration and in the activity which that person is undertaking.

Competent Person's experience

Code

3.7 If the Competent Person is preparing a report on Exploration Targets or Exploration Results, the relevant experience must be in exploration.

3.8 If the Competent Person is estimating, or supervising the estimation of Mineral Resources, the relevant experience must be in the estimation, assessment and evaluation of Mineral Resources.

3.9 If the Competent Person is estimating, or supervising the estimation of Mineral Reserves, the relevant experience must be in the estimation, assessment, evaluation and economic extraction of Mineral Reserves.

3.10 The professional experience of the Competent Person in the related field must be up-to-date.

Guidance

The Competent Person is generally expected to be a geoscientist (geologist, geophysicist or geological engineer, geophysical engineer) to be able to estimate and report Exploration Targets, Exploration Results or Mineral Resources, but for reporting Mineral Reserves, the Competent Person may be qualified in other fields such as mining engineering, mineral processing engineering, and may also be a minerals industry professional registered to an appropriate member grade of the RPO, who contributes to the modifying factors in the report.

The Competent Person may have relevant qualifications or experience in more than one field or type of work. The key qualifier in the definition of a Competent Person is the word 'relevant'. Determination of what constitutes relevant experience can be a difficult area, and common sense has to be exercised. For example, in estimating Mineral Resources for vein gold mineralisation, experience in a high-nugget, vein-type mineralisation such as tin, uranium etc. will probably be relevant, whereas experience in massive base metal deposits may not be.

As a second example, to qualify as a Competent Person in the estimation of Mineral Reserves for alluvial gold deposits, considerable experience (at least seven years) in the evaluation and economic extraction of this type of mineralisation would be needed. This is due to the characteristics of gold in alluvial systems, the particle sizing of the host sediment, and the low grades involved. Experience with placer deposits containing minerals other than gold may not necessarily provide appropriate relevant experience. Experience with placer deposits containing minerals other than gold may not necessarily provide appropriate relevant experience.

The key word 'relevant' also means that it is not always necessary for a person to have five years' experience in each and every type of deposit in order to act as a Competent Person if that person has relevant experience in other deposit types. For example, a person with (say) 20 years' experience in estimating Mineral Resources for a variety of metalliferous hard-rock deposit types may not require

Guidance

seven years' specific experience in (say) porphyry copper deposits to act as a Competent Person. Relevant experience in the other deposit types could count towards the required experience in relation to porphyry copper deposits.

In addition to experience in the style of mineralisation, a Competent Person taking responsibility for the compilation of Exploration Results and/or Mineral Resource estimates should have sufficient experience in the sampling and analytical techniques relevant to the deposit under consideration to be aware of problems, which could affect the reliability of data. Appropriate appreciation of processing and beneficiation applicable to that deposit type is also important.

Competent Person's responsibilities

Code

3.11 The Competent Person must provide explanatory comment on the material assumptions underlying the declaration of Exploration Targets, Exploration Results, Mineral Resources or Mineral Reserves.

3.12 In particular, the Competent Person, when considering Materiality as defined in Article 2.7, must include explicit comment on all aspects that an investor or advisor would reasonably expect to be provided. Competent Person's comment should include but not be limited to any aspect that would influence the public perception or value of the subject matter.

3.13 The Competent Person must be satisfied that:

- their work has not been unduly influenced by the organisation, company or person commissioning the report or a report that may become a Public Report;
- all assumptions are documented; and

adequate disclosure is made of all material aspects that a reader may require to make a reasonable and balanced judgement thereof.

Guidance

As a general guide, persons being called upon to act as Competent Persons should be clearly satisfied in their own minds that they could face their peers and demonstrate competence in the commodity, type of deposit and situation under consideration. If doubt exists, the person either should seek opinions from appropriately experienced colleagues or should decline to act as a Competent Person.

Estimation of Mineral Resources may be a team effort (for example, involving one person or team collecting the data and another person or team preparing the estimate). Estimation of Mineral Reserves is very commonly a team effort involving several technical disciplines. Where there is a clear division of responsibility within a team, each Competent Person and their contribution should be identified, and responsibility accepted for that contribution.

If only one Competent Person signs the Mineral Resource or Mineral Reserve documentation, that person is responsible and accountable for the whole of the documentation under the Code. In this situation the Competent Person accepting overall responsibility for a Mineral Resource or Mineral Reserve estimate and supporting documentation prepared in whole or in part by others, should be satisfied that the work of the other contributors is acceptable.

A site visit to or inspection of the mineral property being evaluated should be undertaken by the Competent Person(s) and appropriate member(s) of the team. In cases where a site visit does not occur, the reasons and its insignificance must be specified.

Complaints placed against the professional work of the Competent Person will be dealt with under the scope of the disciplinary procedures of the person's (Recognised) Professional Organizations (see Appendix 10) and UMREK Regulations.

Guidance

In case a BİST registered company, receiving financing from banks in Türkiye, and having foreign interests and reports on foreign Exploration Targets, Exploration Results, Mineral Resource estimates or Mineral Reserve estimations prepared for a foreign project by a person not meeting the requirements set forth in Article 3.6, this company must commission a Competent Person or Persons that are members of a Recognised Professional Organization to undertake the responsibility of Exploration Results, Mineral Resource estimates or Mineral Reserve estimates. The Competent Person or Persons undertaking this responsibility need to be aware of their full responsibility regarding the report and supporting documents submitted in line with the Istanbul Stock Exchange (BİST) and Banking Credit Legislation rules, and they should not regard this action merely as a 'rubber-stamping' exercise and should make all required assessments expected of them.

4. REPORTING TERMINOLOGY

Defined terms

Code

4.1 In public reporting related to Exploration Results, Mineral Resources and Mineral Reserves only the defined terms specified in Figure 1 should be used.

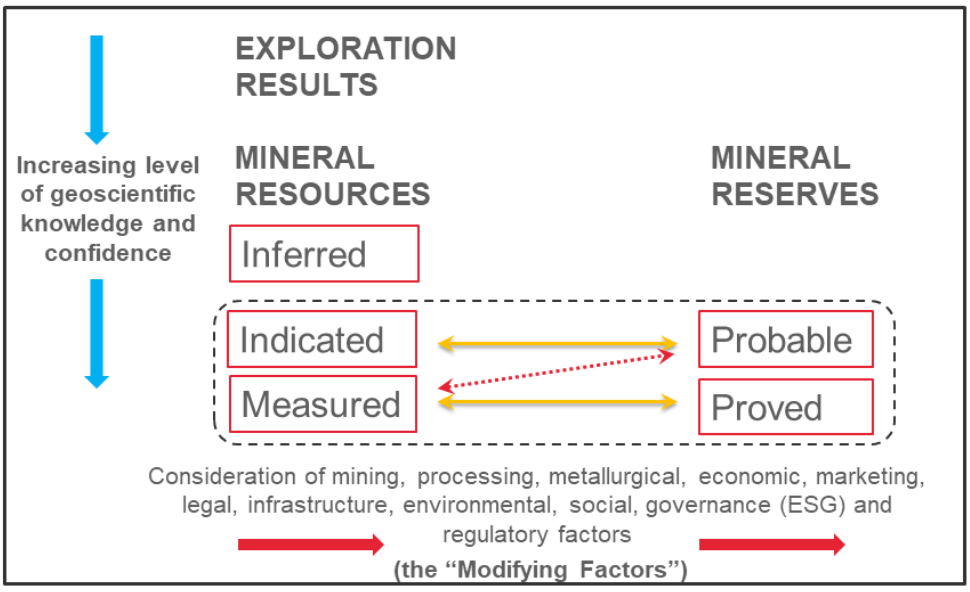

Figure 1. General Relationships between Exploration Results, Mineral Resources and Mineral Reserves

4.2 In the Figure 1, the defined terms are:

- Modifying Factors
- Exploration Results
- Mineral Resources
- Inferred Mineral Resources
- Indicated Mineral Resources
- Measured Mineral Resources
- Mineral Reserves
- Probable Mineral Reserves
- Proved Mineral Reserves

4.3 The categories shown in Figure 1 must be used to report Exploration Results, Mineral Resources and Mineral Reserves.

4.4 The relationships between some of the defined terms are considered in the guidance below. The defined terms are described further in this and subsequent sections.

4.5 Mineral Resource estimates must have reasonable prospects for eventual economic extraction.

4.6 Mineral Reserve estimates must be supported by Pre-Feasibility or Feasibility studies that show their technical and economic viability.

Guidance

A Life of Mine Plan (LoMP) of at least Pre-Feasibility level can be used in an operating mine where there is no significant capital expenditure required.

Measured Mineral Resources may convert to either Proved Mineral Reserves or Probable Mineral Reserves. The Competent Person may convert Measured Mineral Resources to Probable Mineral Reserves because of uncertainties associated with some or all of the Modifying Factors, which are taken into account in the conversion from Mineral Resources to Mineral Reserves. This relationship is shown by the broken arrow in Figure 1.

Modifying Factors

Definition

4.7 **Modifying Factors are considerations used to convert Mineral Resources to Mineral Reserves. These include, but are not restricted to, mining, processing, metallurgical, infrastructure, economic, marketing, legal, environmental, social, governance (ESG) and regulatory factors.**

Code

4.8 The effect of any of a Modifying Factor on the likely viability of a project and/or on the estimation and classification of the Mineral Reserves must be fully explained.

4.9 Refer also to the requirements for reporting Mineral Reserves contained in Articles 8.1 to 8.23.

Guidance

Figure 1 constitutes a general framework to categorise the different levels of geological confidence, and technical and economic evaluation of tonnage and grade or quality estimates.

Mineral Resources can be estimated on the basis of geological knowledge along with some inputs taken from other related disciplines.

Mineral Reserves (indicated with dashed lines in Figure 1) are a subset of Indicated and Measured Mineral Resources and can be estimated by taking into account the factors affecting mineral extraction (Modifying Factors) and inputs taken from a series of different disciplines.

Even though the trend of the broken arrow includes a vertical component, this does not mean a reduction in the level of geological knowledge or confidence. Measured Mineral Resources can be converted into either 'Proved Mineral Reserves' or into 'Probable Mineral Reserves'. In case there are uncertainties about all or some of the Modifying Factors taken into account when converting from Mineral Resource to Mineral Reserve, then the Competent Person can convert from a Measured Mineral Resource to a Probable Mineral Reserve. This relationship has been indicated with the dotted arrow in Figure 1.

It is possible to convert the previously reported Mineral Reserves back into Mineral Resources due to new information affecting the Modifying Factors. This bidirectional relation has been indicated in Figure 1 with two-headed arrows. The changes in the Modifying Factors that lead to such a conversion need to be fully explained.

5. REPORTING OF EXPLORATION TARGETS

Definition

5.1 **An Exploration Target is a statement or estimate of the exploration potential of a mineral deposit in a defined geological setting where the statement or estimate, quoted as a range of tonnes and a range of grade or quality, relates to mineralisation for which there has been insufficient exploration to estimate Mineral Resources.**

Code

5.2 It is a common practice for a company to interpret and discuss the size and type of Exploration Targets. Any such information related to Exploration Target must be correctly expressed so that Mineral Resource or Mineral Reserve is not misrepresented.

5.3 Any statement referring to potential quantity and grade of the target must be expressed as a range and must include a detailed explanation of the basis for the assumptions made and procedures used to estimate the range of tonnage and grade or quality, and extent.

5.4 There must also be a proximate statement that the potential quantity and grade is conceptual in nature, that there has been insufficient exploration to define a Mineral Resource, and that it is uncertain if further exploration will result in the determination of a Mineral Resource.

5.5 The detailed explanation of the basis for the statement of a target must specifically discuss the geological setting and exploration strategy, exploration activity already completed and the presence of or lack of the following attributes:

- mineralised outcrops and assays;
- surface geochemical and physical sampling results;
- surface and subsurface geophysical survey results; and
- drill holes, test pits, and underground workings.

5.6 Proposed exploration activities designed to test the validity of an Exploration Target should be detailed and include the timeframe within which they are expected to be completed.

Guidance

If an Exploration Target is shown pictorially (for instance, as cross sections or maps) or graphically, it must also include explanations meeting the above requirements.

A Public Report containing an Exploration Target must be prepared and/or approved by a Competent Person taking responsibility for the report's content.

Descriptions of Exploration Targets or exploration potential in Public Reports should be expressed so as not to misrepresent them as an estimate of Mineral Resources or Mineral Reserves.

6. REPORTING OF EXPLORATION RESULTS

Definition

6.1 **Exploration Results include data and information generated by mineral exploration programmes that might be of use to investors, but which do not form part of a declaration of Mineral Resources or Mineral Reserves.**

Code

6.2 Reporting of Exploration Results is common in the early stages of exploration when the quantity of data available is generally not sufficient to allow any reasonable estimates of tonnage and grade to be made. Examples include discovery outcrops, single drill hole intercepts or the result or geophysical surveys and results of metallurgical test work.

6.3 Exploration Results may not be part of a formal declaration of Mineral Resources or Mineral Reserves and must not be presented in a way that unreasonably implies the discovery of potentially economic mineralisation.

Guidance

It should be made clear in Public Reports that contain Exploration Results that it is inappropriate to use such information to derive estimates of tonnage and grade or quality (because if there were sufficient information to do so, the resulting estimates would have been quoted).

It is recommended that such reports carry a continuing statement along the following lines:

> *"The information provided in this report/statement/release constitutes Exploration Results. It is inappropriate for the reader to use the information presented for deriving estimates of tonnage and grade or quality".*

Code

6.4 Public Reporting related to exploration results must contain sufficient information to allow reaching a considered and balanced judgement about the significance of these results.

6.5 Reports should include data such as the conditions and environment of mineral exploration, sampling type and method, sampling spacing and methods, sample locations, dimensions, distributions and relative locations of data belonging to all relevant chemical analysis results, data collection methods, land usage conditions and information related to other criteria set forth in Table 1.

6.6 Exploration Results should not be presented without any scientific basis, nor implying the discovery of a potential economic mineralization. If the true widths of mineralization are not included in the report, then an appropriate description must be included in the public reporting.

6.7 Where assay and analytical results are reported, the most appropriate method should be selected and used by the Competent Person from the following methods:

- by listing all the results in accordance with sample intervals (size and method of sample, in the case of bulk sampling), or
- by reporting weighted average grade of mineralised zones (method of grade calculation must be clearly specified).

6.8 Explanatory diagrams and maps, prepared to represent the geological mineral deposit, must be included in the report. The report should also include, but not to be limited to these, plans and maps indicating the locations of drill holes and appropriate plan and sectional views.

Code

6.9 Reporting of selected information such as isolated assays, isolated drill holes, assays of panned concentrates or supergene enriched soils or surface samples, without placing them in perspective is unacceptable.

Guidance

Even though it is not necessary to report all the assays or drill holes, it is compulsory to provide the information related to the omitted data so that the reader of the report can make a judgement. In cases where the exploration result reports do not include all the drill holes or the intersections of drill holes, the Competent Person must provide an explanation about why these were not considered to be important or why they have not been provided.

According to the articles 3.11 and 3.12, the Competent Person should not remain silent about any issue that could affect the public perception or value of the mineral occurrence. For significant projects, all criteria in sections 1 and 2 of Table 1 must be reported on an 'if not, why not' basis and if necessary, the information should be given as an appendix to the report.

In cases where inadequate or uncertain data affect the reliability of the Exploration Results reporting, additional explanation is to be made and included in the report. Examples include poor sample recovery, poor repeatability of assay or laboratory results etc.

7. REPORTING OF MINERAL RESOURCES

Definition

7.1 **A Mineral Resource is a concentration or occurrence of solid material of economic interest in or on the Earth's crust in such form, grade or quality, and quantity that there are reasonable prospects for eventual economic extraction.**

The location, quantity, grade or quality, continuity and other geological characteristics of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge, including sampling.

Mineral Resources are sub-divided, in order of increasing geological confidence, into Inferred, Indicated and Measured categories.

Code

7.2 Mineral Resource reports, regardless of the classification of the resource, must meet the requirement of reasonable prospects for eventual economic extraction.

7.3 Portions of a deposit that do not have reasonable prospects for eventual economic extraction should not be included in a Mineral Resource.

Guidance

Geological evidences and knowledge required for the estimation of the Mineral Resources must include sampling data supporting Inferred, Indicated and Measured Mineral Resource classifications. Sampling data must be present at suitable intervals indicating the geological, chemical, physical and mineralogical characteristics of the mineralization. A Mineral Resource can only be estimated when sampling data are available.

The term 'reasonable prospects for eventual economic extraction' implies an assessment (albeit preliminary) by the Competent Person in respect of all matters likely to influence the prospect of economic extraction including the approximate mining parameters. In other words, a Mineral Resource is not an inventory of all mineralisation drilled or sampled, regardless of cut-off grade, likely mining dimensions, location, or continuity. It is a realistic inventory of mineralization which, under assumed and justifiable technical, economic and development conditions, might, in whole or in part, become economically extractable.

A Competent Person using the criteria listed in Table 1 of the public report with regards to estimation of Mineral Resources, must clearly explain and discuss these criteria. These explanations should also include the discussion of the technical and economic viability (Modifying Factors) for the applied cut-off assumptions.

The interpretation of the word 'eventual' may change in accordance with the included commodity or mineral. For instance, 'eventual economic extraction' must be considered for some coal, iron ore, bauxite and other minerals or commodity for periods of time exceeding 50 years. However, application of the concept for many gold deposits would normally be restricted to perhaps with 10 or 15 years and mostly with shorter time frames. The time frame considered by the Competent Person for all cases must be disclosed and discussed.

Any adjustment made to the data for the purpose of making the Mineral Resource estimate, for example by cutting or factoring grades should be clearly stated and described in the Public Report.

The term 'Mineral Resource' covers mineralisation, including dumps and tailings, which has been identified and estimated through exploration and sampling and within which Mineral Reserves may be defined by the consideration and application of the Modifying Factors.

Where considered appropriate by the Competent Person, Mineral Resource estimates may include material below the selected cut-off grade to ensure that the Mineral Resources comprise bodies of mineralisation of adequate size and continuity to properly consider the most appropriate approach to mining. Documentation of Mineral Resource estimates should clearly identify any diluting

Guidance

material included, and Public Reports should include commentary on the matter if considered material.

Certain reports (e.g. inventory reports, exploration reports to government and other similar reports not intended primarily for providing information for investment purposes) may require full disclosure of all mineralisation, including material that which does not have reasonable prospects for eventual economic extraction. Such non-economic mineralization estimates would not qualify as Mineral Resources or Mineral Reserves in terms of the UMREK Code.

Inferred Mineral Resource

Definition

7.4 **An Inferred Mineral Resource is that part of a Mineral Resource for which quantity and grade or quality are estimated on the basis of limited geological evidence and sampling.**

Geological evidence is sufficient to imply but not verify geological and grade or quality continuity.

An Inferred Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to to Indicated and/or Measured Mineral Resources with continued exploration.

Code

7.5 When the reported Mineral Resource is mostly Inferred Mineral Resource, sufficient supporting information must be provided to ensure that the reader can assess the risks and opportunities related to the reported Mineral Resource.

7.6 In circumstances where the estimation of the Inferred Mineral Resource is presented on the basis of extrapolation beyond the nominal sampling spacing and taking into account the style of mineralisation, the report must contain sufficient information to inform the reader of:

- Maximum distance where the resource is extrapolated beyond the sample points,
- Proportion of the resource estimated based on extrapolation,
- Reasons for extrapolating the resource to these limits,
- Schematic display of Inferred Mineral Resource clearly indicating the extrapolated section of the estimated resource.

Guidance

The Inferred Mineral Resource category refers to an identified mineral concentration or formation where sampling has been completed with limited measurements, but data are not sufficient to reliably support the geological and grade continuity.

Even though it is expected that the majority of Inferred Mineral Resources can be converted to Indicated Mineral Resources depending on ongoing exploration activities, because of the uncertainty of the Inferred Mineral Resources, it should not be assumed that such a conversion will always take place.

Code

7.7 Inferred Mineral Resources cannot be directly converted into Mineral Reserves and should not be specified as part of the Mineral Reserve.

Guidance

The level of confidence in Inferred Mineral Resource estimates is not sufficient enough to allow application of technical and economic parameters results that can be used for detailed planning in Pre-Feasibility or Feasibility Studies. Therefore, no direct connection can be found from Inferred Mineral Resource to Mineral Reserves category (see Figure 1).

Caution should be exercised if Inferred Mineral Resources are used to support technical and economic studies such as Scoping Studies (refer to Article 9.3).

At the discretion of the Competent Person, the Company may include the Inferred Mineral Resource in whole or partially in intracompany planning, scoping or strategic studies. This must be clearly specified in a report related to Inferred Mineral Resources. Under such conditions, a statement should be made that the results are not at a confidence level to ensure all Inferred Mineral Resources would eventually be converted into Indicated Mineral Resources or Mineral Reserves.

Indicated Mineral Resources

Definition

7.8 **An Indicated Mineral Resource is that part of a Mineral Resource for which quantity, grade or quality, densities, shape and physical characteristics are estimated with sufficient confidence to allow the application of Modifying Factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit.**

Geological evidence is derived from adequately detailed and reliable exploration, sampling and testing and is sufficient to assume geological and grade or quality continuity between points of observation.

An Indicated Mineral Resource has a lower level of confidence than that applying to a Measured Mineral Resource and may only be converted to a Probable Mineral Reserve.

Code

7.9 An Indicated Mineral Resource has a higher level of confidence than that applying to an Inferred Mineral Resource.

Guidance

When a deposit or part of a deposit has been explored in sufficient detail to allow the Competent Person estimating the Mineral Resource, to confidently interpret the geological framework and to assume geological and grade continuity of mineralization through the nature, type, quantity and distribution of data, it can be categorised as Indicated Mineral Resource.

The confidence level in the estimate is sufficient to apply technical and economic parameters, to allow preparation of mine plans, grade and tonnage estimates and to schedule an economic life of mine plan.

The Competent Person needs to be aware of the significance of the Indicated Mineral Resource as the Pre-Feasibility or Feasibility Studies progress (see Articles 9.7 and 9.8).

Measured Mineral Resources

Definition

7.10 **A Measured Mineral Resource is that part of a Mineral Resource for which quantity, grade or quality, densities, shape, and physical characteristics are estimated with confidence sufficient to allow the application of Modifying Factors to support detailed mine planning and final evaluation of the economic viability of the deposit.**

Geological evidence is derived from detailed and reliable exploration, sampling and testing and is sufficient to confirm geological and grade or

Definition

quality continuity between points of observation.

A Measured Mineral Resource has a higher level of confidence than that applying to either an Indicated Mineral Resource or an Inferred Mineral Resource. It may be converted to a Proved Mineral Reserve or to a Probable Mineral Reserve.

Code

7.11 A Measured Mineral Resource requires an understanding of, the geology, mineralogy, mineability and amenability to processing of the mineral deposit.

Guidance

Mineral Resources may be classified as a Measured Mineral Resource when the nature, quality, amount and distribution of data are such as to leave no reasonable doubt, in the opinion of the Competent Person determining the Mineral Resource, that the tonnage and grade of the mineralisation can be estimated to within close limits, and that any variation from the estimate would be unlikely to significantly affect potential economic viability.

This category requires a high level of confidence in, and understanding of, the geological properties and controls of the mineral deposit. The confidence level in the estimate is sufficient for the Modifying Factors to be applied within a technical and economic study, as defined in Articles 9.3 to 9.8.

Depending on the confidence level of various Modifying Factors, a Measured Mineral Resource can be converted into 'Proved Mineral Reserve' (high confidence level in Modifying Factors), 'Probable Mineral' Reserve (some uncertainty in Modifying Factors), or it cannot be converted at all, as evidenced by Modifying Factors having an undefined confidence level in some parts or having no confidence at all (for instance pillars in underground mining or having no plan to be mined, as is the case of occurrence outside the limits of an economic operation).

Selection of Mineral Resource reporting category

Code

7.12 Selecting the appropriate Mineral Resource category is dependent on the quantity, distribution and quality of existing data, and the confidence level given to those data.

7.13 The Mineral Resource category must be determined by the Competent Person.

Guidance

Mineral Resource classification is a matter for skilled judgement, and a Competent Person should take into account those items in Table 1 that relate to confidence in Mineral Resource estimation.

In deciding between Measured Mineral Resources and Indicated Mineral Resources, Competent Persons may find it useful to consider, in addition to the phrases in the two definitions relating to geological and grade continuity in Articles 7.8 and 7.10, the phrase in the guideline to the definition for Measured Mineral Resources:

> *'... any variation from the estimate would be unlikely to significantly affect potential economic viability'.*

In deciding between Indicated Mineral Resources and Inferred Mineral Resources, Competent Persons may wish to take into account, in addition to the phrases in the two definitions in Articles 7.4 and 7.8 relating to geological and grade continuity, that part of the definition for Indicated Mineral Resources:

> *'sufficient confidence to allow the application of Modifying Factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit',*

Guidance		*which contrasts with the guideline to the definition for Inferred Mineral Resources:* *'Confidence in the estimate of Inferred Mineral Resources is not sufficient to allow the results of the application of technical and economic parameters to be used for detailed planning in Pre-Feasibility (Article 9.7) or Feasibility (Article 9.8) Studies'* *and* *'Caution should be exercised if Inferred Mineral Resources are used to support technical and economic studies such as Scoping Studies (refer to Article 9.3)'.* *When assessing the geological and grade continuity for the purposes of classifying the resource, the Competent Person should take into account the issues of mineralization type and cut-off grade. Cut-off grades chosen for Mineral Resource estimation should be realistic in relation to the style of mineralisation and the anticipated mining and processing development options.*
Code	7.14	Public Reports of Mineral Resources must indicate at least one or more of the 'Inferred', 'Indicated' and 'Measured' categories.
	7.15	Categories must not be reported in a combined form unless details for the individual categories are also provided.
	7.16	Mineral Resources must not be reported in terms of contained metal or mineral content unless corresponding tonnages and grades are also presented.
	7.17	Mineral Resource and Mineral Reserve value tables must be presented individually.
	7.18	Public Reporting of tonnages and grades outside the categories covered by the Code is not permitted.
	7.19	The words 'ore' and 'reserves' must not be used in describing Mineral Resource estimates as the terms imply technical feasibility and economic viability and are only appropriate when all relevant Modifying Factors have been considered.
	7.20	Reports and statements should continue to refer to the appropriate category or categories of Mineral Resources until technical feasibility and economic viability have been established.
	7.21	In case re-evaluation indicates that Mineral Reserves are not economically feasible, Mineral Reserves must be re-classified as Mineral Resources.
Guidance		*It is not intended that re-classification from Mineral Reserves to Mineral Resources or vice versa should be applied where the effect of the outcomes of changes is expected to be of a short-term or temporary nature, or as a result of the company reaching an intentional decision to operate on a non-economic basis. Examples of such situations are commodity price fluctuations expected to be short-term, mine emergency of a non-permanent nature, strike etc.*
Code	7.22	In a Public Report of a Mineral Resource for a significant project for the first time, or when those estimates have materially changed from when they were last reported, a brief summary of the information in relevant sections of Table 1 must be provided or, if a particular criterion is not relevant or material, a disclosure that it is not relevant or material, and a brief explanation of why this is the case must be provided.

Accuracy of estimates

Code

7.23 Mineral Resource estimates are not precise calculations, being dependent on the interpretation of existing sampling results and limited information on the location, shape and continuity of the Mineral Resource.

7.24 Reporting of tonnage and grade estimates should reflect the relative uncertainty of the estimate through proper rounding into digits. In the case of Inferred Mineral Resources, they must be described with terms such as 'approximate', and the eventual outcome must always be stated as an estimate, rather than a calculation, to emphasise the uncertain nature of Mineral Resources.

Guidance

In most cases, rounding the estimates to the second significant figure is sufficient. For instance: A value of 10.863.000 tons at 8,23% should be indicated as 11 million tons at 8,2%.

There will be occasions, however, where rounding to the first significant figure may be necessary in order to convey properly the uncertainties in estimation.

This would usually be the case with Inferred Mineral Resources.

To emphasise the imprecise nature of a Mineral Resource estimate, the result should always be referred to as an estimate not a calculation.

Competent Persons are encouraged, where appropriate, to discuss the relative accuracy and confidence level of the Mineral Resource estimates with consideration of at least sampling, analytical and estimation errors. The Competent Person's statement of confidence must consider whether the estimates are related to the whole or part of the resource, and if they are related to a part of the resource, it must specify the appropriate tonnage. Where it is not possible to state a relative certainty and level of confidence, a comprehensive discussion of the uncertainties must be provided by taking Table 1 into account.

8. REPORTING OF MINERAL RESERVES

Definition

8.1 **A Mineral Reserve is the economically mineable part of a Measured and/or Indicated Mineral Resource.**

It includes diluting materials and allowances for losses, which may occur when the material is mined or extracted and is defined by studies at Pre-Feasibility or Feasibility level as appropriate that include application of Modifying Factors.

Such studies demonstrate that, at the time of reporting, extraction could reasonably be justified.

The reference point at which Mineral Reserves are defined, usually the point where the ore is delivered to the processing plant, must be stated. It is important that, in all situations where the reference point is different, such as for a saleable product, a clarifying statement is included to ensure that the reader is fully informed as to what is being reported.

Mineral Reserves are sub-divided in order of increasing confidence into Probable Mineral Reserves and Proved Mineral Reserves.

Code

8.2 Mineral Reserves are those portions of Mineral Resources that, after the application of all Modifying Factors, result in an estimated tonnage and grade which, in the opinion of the Competent Person making the estimates, can be the basis of a technically and economically viable project, after taking account of material relevant Modifying Factors.

8.3 In order to achieve the required level of confidence in the Mineral Resources and all of the Modifying Factors, it is expected that studies to at least a Pre-Feasibility or Feasibility level will have been carried out prior to determination of the Mineral Reserves.

8.4 The study will have determined a mine plan that is technically achievable, environmentally acceptable and economically viable and from which the Mineral Reserves can be derived.

8.5 In reporting Mineral Reserves, information on all Modifying Factors must be included in Public Reports.

Guidance

Deriving a Mineral Reserve without a mine design or mine plan through a process of factoring of the Mineral Resource is unacceptable.

Mineral Reserves are usually reported in a manner that also includes economic material and diluting material that have been delivered for treatment or dispatched from the mine without any treatment (raw).

The assessment techniques (including block sizes, where applicable) and the main assumptions made when preparing the estimate must be disclosed.

The term 'economically mineable'; implies that extraction of the Mineral Reserve is possible in line with the technical, economic and other related assumptions to be specified. Such assumptions will vary by deposit type, level of the work conducted and financial criteria of the Company.

For this reason, there can be no fixed definition for the term 'economically mineable'. However, the efforts by the companies and the investors involved in the project to gain acceptable returns on the invested capital aims to make these resources competitive with the comparable alternative investment risks.

The term 'Mineral Reserves' does not need to state that mineral extraction facilities have been erected or are in operation or all necessary approvals or sale contracts have been acquired. Statements of Mineral Reserve imply that there are reasonable expectations for these plants to be established, to be profitably operated and that approval and/or agreements are to be acquired within the

Guidance		*anticipated time frame required by the mine plans. In certain cases, it is impossible to reach these 'reasonable expectations' before actually receiving the approval or signing the agreement. In all cases, Competent Person needs to assess the consequences of all uncertain issues related to mineral extraction.* *If zones of radically different characteristics in terms of mineral processing treatment or recoveries are present, then these should be reported individually as well as jointly.* *Mineral Reserve estimates can sometimes be reported at high level or breakeven grades or following the application of factors such as mine or mill processes reflecting the historical experience related to the differences between Mineral Resources depleted and production. In case any data used within the Mineral Reserve estimate are amended or changed in scope to make the estimate, this must be clearly indicated in the Public Report, and the nature of the change or amendment must be explained.* *When companies prefer to use the term 'Ore Reserve' in their own Public Reporting, they must clearly specify that it is being used with the same meaning as the 'Mineral Reserve' defined in this Code.* *The Code implies that a Company could produce the Mineral Reserves, but the Code does not imply that a production decision has been made.* *Wherever possible, the Competent Person must disclose the commodity prices and exchange rates used for Mineral Reserve estimation. If commodity prices are not given, the reasons must be given; for instance, disclosure of a certain price may be anticompetitive. In such cases, wherever suitable, a reference must be made to 'existing or estimated prices' or 'prices known to be applied at site'.* *Commodity prices need to be on the basis of supportable, prospective, short- or long- term estimates, whichever applies. Extremely optimistic or pessimistic price predictions can lead to serious over or under estimations of Mineral Reserves.* *In places where commodities are being sold using the prices listed in the existing contracts, Mineral Reserves must be determined by using these contract prices.* *When commodity prices are disclosed, such disclosure could be an equal, single-price prediction used for reserve determination or it can also be a price range which will not cause any material change in reserves.* *Whether the commodity prices used for reserve prediction are published or not, the method used to determine these prices must be disclosed. Such a disclosure should be in a form that helps investors or other stakeholders to decide whether these prices reflect their reasonable opinions about future prices.* *Documents supporting price predictions may include comparisons between past and current prices, future projections, market opinions, exchange rates and other relevant information.*
Code	8.6	In jurisdictions where the Mineral Rights are not held by the State, for a Mineral Reserve to be declared it is required that legally enforceable mineral title is controlled by the company at the time of determination. If the company is leasing or sub-leasing the mineral, the lease or sub-lease should be from an entity that has control of the necessary mineral title.
Guidance		*If there is doubt about what should be reported, it is better to err on the side of providing too much information than too little.* *Any adjustment made to the data for the purpose of making the Mineral Reserve estimate, for example by cutting or factoring grades, should be clearly stated and described in the Public Report.* *It should be noted that the Code does not imply that an economically viable project should have Proved Mineral Reserves. Situations may arise where Probable Mineral Reserves alone may be sufficient to justify extraction, as for example with some alluvial tin, diamond or gold deposits. This is a matter for judgement by the Competent Person.*

Probable Mineral Reserves

Definition

8.7 **A Probable Mineral Reserve is the economically mineable part of an Indicated, and in some circumstances, a Measured Mineral Resource.**

The confidence in the Modifying Factors applying to a Probable Mineral Reserve is lower than that applying to a Proved Mineral Reserve.

Code

8.8 A Probable Mineral Reserve has a lower confidence level than a Proved Mineral Reserve; however, it can have sufficient quality to serve as a basis of a decision to be taken to conduct mining operations.

Proved Mineral Reserves

Definition

8.9 **A Proved Mineral Reserve is the economically mineable part of a Measured Mineral Resource. A Proved Mineral Reserve implies a high degree of confidence in the Modifying Factors.**

Code

8.10 A Proved Mineral Reserve represents the highest confidence level of reserve estimate and implies a high degree of confidence in geological and grade continuity, and the consideration of the Modifying Factors.

Guidance

A Proved Mineral Reserve represents the highest confidence level that is both technically and economically reachable for a company. The style of mineralisation or other factors which can imply that Proved Mineral Reserves are not achievable at some deposits.

During the economic lifespan of a project, the Competent Person must be cautious in declaring Proved Mineral Reserves at early stages. Subsequently acquired data may indicate that this decision was too optimistic, and the reserves may need to be downgraded or removed. In general, it is a better practise to report early estimates as Probable Reserves or to postpone reporting, rather than withdrawing the statements in the future.

Selection of Mineral Reserve reporting category

Code

8.11 The choice of the appropriate category of Mineral Reserve is determined primarily by the classification of the corresponding Mineral Resource and after considering any uncertainties in the Modifying Factors.

8.12 Allocation to the appropriate category must be made by the Competent Person.

Guidance		*The Code provides for a direct relationship between Indicated Mineral Resources and Probable Mineral Reserves and between Measured Mineral Resources and Proved Mineral Reserves. In other words, the level of geoscientific confidence for Probable Mineral Reserves is at least as high as that required for the determination of Indicated Mineral Resources, and the level of geoscientific confidence for Proved Mineral Reserves is the same as that required for the determination of Measured Mineral Resources.* *The Code provides for a two-way relationship between Measured Mineral Resources and Probable Mineral Reserves. This is to cover the situation where uncertainties associated with any of the Modifying Factors considered when converting Mineral Resources to Mineral Reserves may result in there being a lower degree of confidence in the Mineral Reserves than in the corresponding Mineral Resources. Such a conversion would not imply a reduction in the level of geoscientific knowledge or confidence.* *If the uncertainties in the Modifying Factors that prevented the Measured Mineral Resource being converted to a Proved Mineral Reserve are removed, then the Measured Mineral Resource may be converted to a Proved Mineral Reserve. No amount of confidence in the Modifying Factors for conversion of a Mineral Resource into a Mineral Reserve can override the upper level of confidence which exists in the Mineral Resource. Under no circumstances can an Indicated Mineral Resource be converted to a Proved Mineral Reserve, unless new information first justifies conversion to a Measured Mineral Resource. Under no circumstances can an Inferred Mineral Resource be converted to a Mineral Reserve unless first converted to an Indicated or Measured Mineral Resource.*
Code	8.13	Public Reports of Mineral Reserves must specify one or other or both of the categories of 'Proved' and 'Probable'.
	8.14	Reports must not contain combined Proved and Probable Mineral Reserve figures unless the relevant figures for each of the categories are also provided.
	8.15	Reports must not present metal or mineral content figures unless corresponding tonnage and grade figures are also given.
	8.16	Mineral Reserves must not be aggregated with Mineral Resources.
	8.17	Public reporting of tonnage and grade outside the categories covered by the Code is not permitted.
Guidance		*Mineral Reserves may incorporate material (dilution) that is not part of the original Mineral Resource. It is essential that this fundamental difference between Mineral Resources and Mineral Reserves is borne in mind and caution exercised if attempting to draw conclusions from a comparison of the two.* *When revised Mineral Reserve and Mineral Resource statements are publicly reported they should be accompanied by reconciliation with previous statements. A detailed account of differences between the figures is not essential, but sufficient comment should be made to enable significant changes to be understood by the reader.*
Code	8.18	In situations in which figures for both Mineral Resources and Mineral Reserves are reported, the Public Report must include a statement that clearly indicates whether the Mineral Resources are inclusive of, or exclusive of those Mineral Resources that have been modified to produce Mineral Reserves.
	8.19	For transparency, it is preferred that Mineral Resources be reported as exclusive of Mineral Reserves.

Guidance

However, in some situations, there are reasons for reporting Mineral Resources inclusive of Mineral Reserves. It must be made clear which form of reporting has been adopted. Appropriate forms of clarifying statements may be:

> *'The Measured and Indicated Mineral Resources are exclusive of (in addition to) Mineral Reserves.'*

or

> *'The Measured and Indicated Mineral Resources are inclusive of those modified to produce Mineral Reserves'.*

In the former case, if any Measured and Indicated Mineral Resources have not been modified to produce Mineral Reserves for economic or other reasons, the relevant details of the unmodified Mineral Resources should be included in the report. This is to assist the reader of the report in making a judgement of the likelihood of the unmodified Measured and Indicated Mineral Resources eventually being converted to Mineral Reserves.

Inferred Mineral Resources are by definition always additional to Mineral Reserves.

For reasons stated in the guidelines to Articles 8.11 and 8.12, and in this guideline, the reported Mineral Reserve figures must not be added to the reported Mineral Resource figures. The resulting total is misleading and is capable of being misunderstood or of being misused to give a false impression of a company's prospects.

Code

8.20 If re-evaluation indicates that any part of the Mineral Reserves is no longer viable, such Mineral Reserves must be re-classified as Mineral Resources and be removed from the Mineral Reserve statements.

Guidance

It is not intended that re-classification from Mineral Reserves to Mineral Resources or vice versa should be applied as a result of changes expected to be of a short term or temporary nature, or where company management has made a deliberate decision to operate on a non-economic basis. Examples of such situations might be commodity price fluctuations expected to be of short duration, mine emergency of a non- permanent nature, transport strike, etc.

Code

8.21 In a public report containing a Mineral Reserve estimate related to a significant project being conducted for the first time or when such estimates have been significantly changed in the final reporting, a brief summary of the relevant information contained in Table 1 should be presented. If information is not relevant, this must be clarified, and a brief explanation about its irrelevance must be presented.

8.22 It is accepted that mine design and planning in a LoMP may include a proportion of Inferred Mineral Resources. If this category is considered in mine design, mine planning or economic studies, the results of which are publicly reported, full disclosure must be made and the effect on the results of the studies must be stated.

Modifying Factors and assumptions applied to the Inferred Mineral Resources must reflect a risk analysis taking into account their lower geological knowledge and confidence.

A LoMP must be economically viable without Inferred Mineral Resources to support the declaration of Mineral Reserves.

Where a material amount of mining in the LoMP includes Inferred Mineral Resources, a comparison of the results with and without these Inferred Mineral Resources must be shown, and the rationale (including a risk assessment) behind their inclusion must be explained and the proportion of Inferred Resources included in the LoMP reported.

Guidance

Inferred Mineral Resources may be included in mine design, mine planning and economic studies only if a LoMP and a statement of Mineral Reserves that declares that Inferred Mineral Resources have been included exists, but a proximate statement should be provided:

"Only Probable and Proved Mineral Reserves have been used to establish the economic viability of the mine design in economic studies".

Accuracy of estimates

Code

8.23 Mineral Reserve estimates are not precise calculations. Reporting of tonnage and grade figures should reflect the relative uncertainty of the estimate by rounding off to appropriately significant figures. Refer also to Article 7.23.

Guidance

To emphasise the imprecise nature of a Mineral Reserve, the result should always be referred to as an estimate not a calculation.

Competent Persons should, where appropriate, discuss the relative accuracy and/or confidence of the Mineral Reserve estimates.

The statement should specify whether it relates to global (the whole of the reserve) or local estimates (a subset of the reserve for which the accuracy and/or confidence might differ from the whole of the reserve), and, if local, state the relevant tonnage or volume.

Where a statement of the relative accuracy and/or confidence is not possible, a qualitative discussion of the uncertainties should be provided (refer to Table 1, Table 2 and to the Articles 7.9 and 7.11).

9. TECHNICAL STUDIES

Code

9.1 Public Reports may include, but not be limited to, information included in or supported by:

- Scoping studies
- Pre-Feasibility studies
- Feasibility studies

9.2 Guidelines on the requirements for a Scoping, Pre-Feasibility and a Feasibility Study are included in Table 2.

Scoping Study

Definition

9.3 **A Scoping Study is an order of magnitude technical and economic study of the potential viability of Mineral Resources that includes appropriate assessments of realistically assumed Modifying Factors together with any other relevant operational factors that are necessary to demonstrate at the time of reporting that progress to a Pre-Feasibility Study can be reasonably justified.**

Code

9.4 A Scoping Study must not be used as basis for estimation of Mineral Reserve.

9.5 If the outcome of a Scoping Study is partially supported by Inferred Mineral Resources, the Public Report must state the proportion and relative sequencing of the Inferred Mineral Resources within the Scoping Study.

9.6 For all Scoping Studies, the company must include a cautionary statement in the same paragraph as or immediately following the disclosure of the Scoping Study.

Guidance

An example cautionary statement follows:

"The Scoping Study referred to in this report is based on low-level technical and economic assessments and is insufficient to support estimation of Mineral Reserves or to provide assurance of an economic development case at this stage, or to provide certainty that the conclusions of the Scoping Study will be realised."

In discussing 'reasonable prospects for eventual economic extraction' at Article 7.1, an assessment (albeit preliminary) is required of all matters likely to influence the prospect of economic extraction including the approximate modifying factors by the Competent Person. While a Scoping Study may provide the basis for that assessment, the Code does not require a Scoping Study to have been completed to report a Mineral Resource.

Scoping Studies are commonly the first economic evaluation of a project undertaken and may be based on a combination of directly gathered project data together with assumptions borrowed from similar deposits or operations to the case envisaged.

Scoping Studies are also commonly used by companies for comparative and planning purposes. Reporting the general results of a Scoping Study should be undertaken with care to ensure there is no implication that Mineral Reserves have been established or that economic development is assured.

In this regard, it is appropriate to indicate the Mineral Resource inputs to the Scoping Study and the processes applied, but it is not appropriate to report the diluted tonnes and grade as if they were Mineral Reserves.

While initial mining and processing cases may have been developed during a Scoping Study, they must not be used to allow an Mineral Reserve to be declared.

Pre-Feasibility Study

Definition

9.7 **A Pre-Feasibility Study is a comprehensive study of a range of options for the technical and economic viability of a mineral project that has advanced to a stage where a preferred mining method, in the case of an underground mining, or the pit configuration, in the case of an open pit, is established and an effective method of mineral processing is determined. It includes a financial analysis based on reasonable assumptions on the Modifying Factors and the evaluation of any other relevant factors which are sufficient for a Competent Person, acting reasonably, to determine if all or part of the Mineral Resource may be converted to a Mineral Reserve at the time of reporting. A Pre-Feasibility Study is at a lower confidence level than a Feasibility Study.**

Guidance

As required in Article 8.1, formal assessment of all Modifying Factors is required in order to determine how much available Measured and Indicated Mineral Resources can be converted to Mineral Reserves.

A Pre-Feasibility Study will consider the application and description of all Modifying Factors (as outlined in Table 1, Section 5), to demonstrate economic viability and to support a Mineral Reserve in a Public report.

The Pre-Feasibility study will identify the preferred mining, processing, and infrastructure requirements and capacities, but will not yet have finalised these matters. Detailed assessments of environmental and socio-economic impacts and requirements will also be well advanced.

The Pre-Feasibility Study will highlight areas that require further refinement within the final study stage.

Feasibility Study

Definition

9.8 **A Feasibility Study is a comprehensive technical and economic study of the selected development option for a mineral project that includes appropriately detailed assessments of applicable Modifying Factors together with any other relevant operational factors and detailed financial analysis that are necessary to demonstrate at the time of reporting that extraction is reasonably justified (economically mineable). The results of the study may reasonably serve as the basis for a final decision by a proponent or financial institution to proceed with, or finance, the development of the project. The confidence level of the study will be higher than that of a Pre-Feasibility Study.**

Code

9.9 It is not required that a full Feasibility Study has been undertaken to convert Mineral Resources to Mineral Reserves. It is however, necessary that at least a Pre-Feasibility Study has been carried out that will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.

Guidance

Terms such as 'Bankable Feasibility Study' and 'Definitive Feasibility Study', are noted as being equivalent to a Feasibility Study as defined in this Clause.

A Feasibility study is of a higher level of confidence than a Pre-Feasibility Study and would normally contain mining, infrastructure and process designs completed with sufficient rigor to serve as the basis for an investment decision or to support project financing. Environmental, social, governance (ESG) and regulatory approvals, permits, and agreements will be in place or will be approaching finalisation within the expected development timeframe.

The Feasibility Study will contain the application and description of all Modifying Factors (as outlined in Table 1, Section 5), in a more detailed form than in the Pre-Feasibility Study and may address implementation issues such as detailed mining schedules, construction ramp up, and project execution plans.

10. REPORTING OF METAL EQUIVALENTS

Code

10.1 The reporting of Exploration Results, Mineral Resources and/or Mineral Reserves for polymetallic deposits in terms of metal equivalents (a single equivalent grade of one major metal) must show details of all material factors contributing to the net value derived from each constituent.

10.2 The following minimum information must accompany any Public Report that includes reference to metal equivalents, in order to conform to the principles of Transparency, Materiality and Competence, as set out in Articles 2.6 to 2.8:

- individual grades for all metals included in the metal equivalent calculation;
- assumed commodity prices for all metals. The actual assumed prices should be disclosed. It is not sufficient to refer to a spot price without disclosing the price used in calculating the metal equivalent. However, where the actual prices used are commercially sensitive, sufficient information must be disclosed, perhaps in narrative rather than numerical form, for investors to understand the methodology used to determine these prices;
- assumed beneficiation recoveries for all metals and discussion of the basis on which the assumed recoveries are derived (metallurgical test work, detailed mineralogy, similar deposits, etc.);
- a clear statement that it is the company's opinion that all the elements included in the metal equivalents calculation have a reasonable potential to be recovered and sold; and
- the calculation formula used.

10.3 In most circumstances, the metal chosen for reporting on an equivalent basis should be the one that contributes most to the metal equivalent calculation. If this is not the case, a clear explanation of the logic of choosing another metal must be included in the report.

10.4 Estimates of beneficiation recoveries for each metal must be used to calculate meaningful metal equivalents.

10.5 Reporting on the basis of metal equivalents is not appropriate if metallurgical recovery information is not available or not able to be estimated with reasonable confidence.

11. COMMODITY PRICING AND MARKETING

Code

11.1 Commodity prices and sales volume expectations used for the determination of Mineral Resources and Mineral Reserves must be based on forward-looking estimates reflecting the company's reasonable and supportable short- and long-term expectations as supported by available evidence, which may include consensus forecasts, three-year trailing averages, sales contracts, or other price analyses (see Articles 11.4 and 11.5 below for cases where public disclosure is not appropriate).

Guidance

The basis for the selected prices and sales volumes should be supported by appropriate documentation.

The Competent Person should ascertain that these prices and volumes are consistent with sales agreements and marketing determinations or forecasts.

Under certain circumstances, it may be appropriate to use different prices for estimating Mineral Resources and Mineral Reserves.

For current mining operations, the price and volume profile used for Mineral Resources and Mineral Reserves estimation may reflect current market conditions for short-term forecasts, while trending with time upward or downward toward the long-term price and volume estimates based on the company's expectations.

For Mineral Reserves that are expected to be produced beyond the validity of short-term forecasts, the company should use long-term price and volume expectations.

For commodities sold under existing contracts, Mineral Reserves should be determined based on contract terms.

For Mineral Reserves for which production would extend beyond the quantities specified in existing contracts, reasonable and supportable assumptions should be made to determine the likelihood of contract renewal and prices applicable for the estimation and reporting of these Mineral Resources and Mineral Reserves.

Code

11.2 To demonstrate the economic feasibility of a Mineral Reserve, the estimated prices, combined with Modifying Factors, must be applied to only Measured and Indicated Mineral Resources.

Guidance

Mineral Reserves are the economically mineable part of a Measured or Indicated Mineral Resource; hence, appropriate assessments should demonstrate at the time of reporting that extraction is reasonably justified. This requires that assumptions are made concerning the price of the commodity or product that will be sold when the mine is in production.

Mineral Reserves are estimated and published to supply information concerning the value of the deposit and the risk which may be associated with its development.

Mineral Reserves are used by a company, in conjunction with Mineral Resources, for short-term, long-term, and strategic planning. They play a critical role in accounting, including impairment testing, fair value accounting, calculation of depreciation, depletion, and accumulated retirement obligation provision rates.

To supply information consistent with the company's plans and financial reporting, commodity prices used for the determination of Mineral Reserves should be based on forward-looking estimates reflecting the company's reasonable expectations as supported by all available evidence.

Guidance		*Most commodities, whether sold using publicly quoted prices (e.g. base metals and precious metals) or under long term contract (e.g., coal and iron ore), experience long-term price cycles. Price expectations should reflect current prices as well as long-term trends. Overly optimistic or pessimistic price and volumes expectations could result in significant over or underestimation of Mineral Reserves. It is the responsibility of the company and the Competent Person to determine whether the prices used for Mineral Reserve estimation are reasonable and supportable, given all available information.* *During periods of low prices, a mining company may choose to temporarily curtail operations and conserve the mineral asset until prices recover. When such actions are taken, Public Reports should be updated to reflect the new information. In such circumstances, previously published Mineral Reserves may not have to be reclassified, provided that, in the opinion of company and the Competent Person, higher future prices can be reasonably and supportably assumed, and it can reasonably be expected that operations will resume.* *The documentation supporting the company's expectations should include: comparison of prices with historical and current prices and forward curves, contracts and market considerations, currency exchange rates where applicable, third party sources, and supplemental information.*
Code	11.3	Disclosure in Public Reports of the commodity prices and sometimes also the costs (including other Modifying Factors) used for Mineral Reserve estimation is generally required.
	11.4	In the absence of applicable securities or other laws to disclose prices, there may be cases, such as when a product is sold under long-term contract, the terms of which are confidential, where there are valid commercial reasons for non-disclosure of prices.
	11.5	Similarly, where disclosure of the long-term price and/or cost assumptions used in the estimation would be detrimental to the company's business, such as when bidding for sales contracts or property acquisitions or negotiating agreements with third parties, non-disclosure may be justifiable.
Guidance		*Whenever prices and/or costs are not disclosed, the reasons should be documented, and the commodity price and/or cost information should nevertheless be available for review by auditors or regulators if required.* *Even when commodity prices and/or costs are excluded from a Public Report, a description of the methodology used to determine the prices and/or costs should be disclosed. Such disclosure should be in a form which helps the audience of the Public Report to form an opinion that prices and/or costs used represent reasonable views of future prices and/or costs.* *The exceptions to disclosure of commodity prices and/or costs are subject to, and overruled by, any obligations imposed by applicable securities or other laws.*

12. PERMITTING AND LEGAL REQUIREMENTS

Code

12.1 When reporting Mineral Reserves, it is essential that there are no cases that may restrain mining activities due to the failure to obtain the relevant permits.

12.2 There must be a reasonable expectation by the Competent Person, often through reliance on legal and permitting experts, that all permits, ancillary rights (including water or other property rights) and authorisations required for mining, and to the extent applicable, processing and marketing, can be obtained in a timely fashion, and maintained for ongoing operations.

12.3 The company must complete a review of all legal and permitting requirements and document the findings. Local environmental laws and processes must be taken into account.

12.4 To demonstrate reasonable expectation that all permits, ancillary rights and authorisations can be obtained, the company must show understanding of the procedures to be followed to obtain such permits, ancillary rights and authorisations. Demonstrating earlier success in obtaining the necessary permits can be used to document the likelihood of future success.

12.5 If permits are required, but there is no defined procedure to obtain such permits, reasonable expectation of success may be difficult to support. Information that materially increases or decreases the risk that the necessary legal rights or permits will be obtained must be disclosed.

12.6 It is recognised that the legal and permitting environment may change over time and that such changes could have an impact on Mineral Reserve estimation. If it is determined that obstacles arise or are eliminated, the Mineral Reserve estimates must be adjusted accordingly.

Guidance

It is recognised that some permits cannot be obtained until after a Mineral Reserve has been declared. There might be sound business reasons why obtaining some permits should be postponed.

It is also recognised that waiting for all permits to be on hand could result in critical information not being released to the investors in a timely fashion, and therefore it is recommended that disclosure of material information occur prior to obtaining permits as appropriate.

Documentation should include a brief description of the title, claim, lease or option under which the company has the right to hold or operate the property, indicating any conditions that the company must meet to obtain or retain the property.

If held by leases or options, the expiry dates of such leases or options should be stated. If extension of leases or options will be needed to mine the Mineral Reserves, there should be reasonable expectation that such extension will be granted.

Code

12.7 Royalty terms and clawback rights of former claim/land holders must be disclosed.

12.8 Information relating to the review of legal and permitting issues must be documented either in full or by reference. The information may remain confidential to the company. However, when required, it may be released to regulators or auditors on a confidential basis.

13. SUSTAINABILITY CONSIDERATIONS

Code

13.1 Public Reports should discuss environmental, social, and health and safety impacts that are expected during development, operation and after closure. These impacts will concern employees, contractors, local communities, customers and create awareness on these groups.

Guidance

Historical performance by the company should be used to engage all stakeholders and to plan for continued benefits for all parties concerned.

In the minerals industry, health and safety has traditionally received the most attention, with accident statistics reflecting these improvements.

Sustainability can refer to three principal themes: the ability of the environment to maintain itself with minimal impacts to the local flora and fauna; the ability of the surrounding community to continue its traditional economic and cultural activities; and the ability of newly created economic inputs to continue beyond the mine life.

Social issues and the social licence to operate (SLO) are a measure of the communication, transparency and level of trust with local communities and society at large. Programs to create positive impacts in environmental, safety, and sustainability all contribute to winning the trust needed for the SLO.

The Competent Person should ensure the report discusses reasonably available information on environmental, permitting, and social or community factors related to the project.

The discussions should include, where relevant:

- *a summary of the results of any environmental studies and a discussion of any known environmental issues that could materially impact the issuer's ability to extract the Mineral Resources or Mineral Reserves;*
- *requirements and plans for waste and tailings disposal, site monitoring, and water management both during operations and post mine closure;*
- *project permitting requirements, the status of any permit applications, and any known requirements to post performance or reclamation bonds;*
- *a discussion of any potential social or community related requirements and plans for the project and the status of any negotiations or agreements with local communities;*
- *a discussion of mine closure (remediation and reclamation) requirements and costs;*
- *special capital or operating requirements for handling hazardous minerals or reagents, as well as other health and industrial hygiene risks;*
- *any savings in energy usage or other reduction of consumption reflecting directly in the economic outcome of the project; and*
- *Mineral Reserve estimates should acknowledge the likely environmental and social impact of development and ensure that appropriate allowances are made for mitigation and remediation.*

TABLE 1 - CHECK LIST OF ASSESSMENT AND REPORTING CRITERIA

Table 1 provides, in a summary form, a list of the criteria which should be considered when preparing reports on Exploration Results, Mineral Resources and Mineral Reserves. A comment is given to all sections of Table 1 on an 'if not, why not' basis. The Table is included in the Code as an example of best practice. Requirements will differ from jurisdiction to jurisdiction, and as always Transparency, Materiality and Competence are overriding principles that determine what information should be publicly reported. The Competent Person must provide sufficient comment on all matters that may affect a reader's understanding or interpretation of the results or estimates being reported.

Publicly reported information should be sufficient to enable an informed reader to make a reasonable and balanced assessment of the significance of this information. It is, however, important to report any matters that might materially affect a reader's understanding or interpretation of the results or estimates being reported. This is particularly important where inadequate or uncertain data affect the reliability of, or confidence in, a statement of Exploration Results or an estimate of Mineral Resources or Mineral Reserves.

In some cases, it will be appropriate for a Public Report to exclude some commercially sensitive information. A decision to exclude commercially sensitive information would be a decision for the company issuing the Public Report, and such a decision should be made in accordance with any relevant regulations in that jurisdiction. In cases where commercially sensitive information is excluded from a Public Report, the report should provide summary information (for example the methodology used to determine economic assumptions where the numerical value of those assumptions is commercially sensitive) and context for informing investors or potential investors and their advisors.

The order and grouping of criteria in Table 1 reflect the normal systematic approach to exploration and estimation of resources and reserves. The table should be approached from left to right. In other words, criteria in the first column, Exploration Results, should be considered to apply also when reporting Mineral Resources and Mineral Reserves. Similarly, additional criteria in the Mineral Resources column apply also to Mineral Reserves reporting.

When compiling a Public Report dealing with coal, diamonds, industrial minerals, cement feed and construction raw materials (aggregates), dimension stone, metallic and non-metallic minerals extracted through solution mining methods and asphaltites, oil shales, oil sands and other energy minerals extracted through mining methods there are specific matters that must be considered. Appendices 4 to 9 of the Code address these specific commodities. Sections 10-13 of Table 1 include also items that may be specific to those commodities and therefore have been placed within Appendices 4 to 9 where relevant.

TABLE 1 – CHECK LIST OF ASSESSMENT AND REPORTING CRITERIA					
				Exploration Results	Mineral Resources	Mineral Reserves
Introduction					
Introduction	**General**	(i)	The terms of reference or scope of work.		
		(ii)	The Competent Person's relationship to the issuer of the report, if any.		
		(iii)	A statement for whom the report was prepared; whether it was intended as a full or partial evaluation or other purpose, work conducted, effective date of report, and remaining work.		
		(iv)	Sources of information and data contained in the report or used in its preparation, with citations if applicable, and a list of references.		
		(v)	A title page and a table of contents that includes figures and tables.		
		(vi)	An Executive Summary, which briefly summarises important information in the Public Report, including property description and ownership, geology and mineralisation, the status of exploration, development and operations, Mineral Resource and Mineral Reserve estimates, and the Competent Person's conclusions and recommendations. If Inferred Mineral Resources are used, a summary valuation with and if practical without inclusion of such Inferred Mineral Resources. The Executive Summary should have sufficient detail to allow the reader to understand the essentials of the project.		
		(vii)	A declaration from the Competent Person, stating whether "the declaration has been made in terms of the guidelines of the (state the NRO) Code". If a reporting code other than the code of the NRO having jurisdiction has been used, an explanation of the differences.		
		(viii)	Diagrams, maps, plans, sections and illustrations, which are dated, legible and prepared at an appropriate scale to distinguish important features. Maps including a legend, author or information source, coordinate system and datum, a scale in bar or grid form, and an arrow indicating north. Reference to a location or index map and more detailed maps showing all important features described in the text, including all relevant cadastral and other infrastructure features.		
		(ix)	The units of measure, currency and relevant exchange rates.		
		(x)	The details of the personal inspection on the property by each Competent Person or, if applicable, the reason why a personal inspection has not been completed.		
		(xi)	If the Competent Person is relying on a report, opinion, or statement of another expert who is not a Competent Person, then a disclosure of the date, title, and author of the report, opinion, or statement, the qualifications of the other expert, the reason for the Competent Person to rely on the other expert, any significant risks and any steps the Competent Person took to verify the information provided.		

			Exploration Results	Mineral Resources	Mineral Reserves
Section 1: Project Outline					
1.1	**Location**	(i)	Description of location and map (country, province, and closest town/city, coordinate systems and ranges, etc.).		
		(ii)	Country Profile, with a description of information relating to the project host country that is pertinent to the project, including relevant applicable legislation, environmental and social context etc. An assessment, at a high level, of relevant technical, environmental, social, economic, political and other key risks.		
		(iii)	A general topo-cadastral map.	Topo-cadastral map in sufficient detail to support the assessment of eventual economics. A statement of known associated climatic risks.	Detailed topo-cadastral map, with applicable aerial surveys checked with ground controls and surveys, particularly in areas of rugged terrain, dense vegetation or high altitude.
1.2	**Property Description**	(i)	Brief description of the scope of project (i.e., whether in preliminary sampling, advanced exploration, Scoping, Pre-Feasibility, or Feasibility Study, Life of Mine plan for an ongoing mining operation or closure).		
		(ii)	Description of topography, elevation, drainage and vegetation, the means and ease of access to the property, the proximity of the property to a population centre, and the nature of transport, the climate, known associated climatic and seismic risks and the length of the operating season and to the extent relevant to the mineral project, the sufficiency of surface rights for mining operations including the availability and sources of power, water, mining personnel, potential tailings storage areas, potential waste disposal areas, heap leach pad areas, and potential processing plant sites (noting any conditions that may affect possible prospecting/mining activities).		
1.3	**Adjacent properties**	(i)	Details of relevant adjacent properties. The inclusion on the maps of the location and common mineralised structures in adjacent or nearby properties having an important bearing on the report. Reference to all information used from other sources.		
1.4	**History**	(i)	Historical background to the project and adjacent areas concerned, including known results of previous exploration and mining activities (type, amount, quantity and development work), previous ownership and changes thereto.		
		(ii)		Previous successes or failures referred to transparently with reasons why the project should now be considered potentially economic.	
		(iii)		Known or existing historical Mineral Resource estimates and performance statistics from actual production for past and current operations.	
		(iv)			Known or existing historical Mineral Reserve estimates and performance statistics to actual production for past and current operations.
1.5	**Legal Aspects and Permitting**		A statement from the Competent Person on the confirmation of the legal tenure, including a description of:		
		(i)	The nature of the issuer's rights (e.g., prospecting and/or mining) and the right to use the surface of the properties to which these rights relate. The date of expiry and other relevant details.		
		(ii)	The principal terms and conditions of all existing agreements, and details of those still to be obtained, (such as, but not limited to, concessions, partnerships, joint ventures, access rights, leases, historical and cultural sites, wilderness or national park and environmental settings, royalties, consents, permission, permits or authorisations).		
		(iii)	The security of the tenure held at the time of reporting or that is reasonably expected to be granted in the future along with any known impediments to obtaining the right to operate in the area. Details of applications that have been made. See Article 8.1 for declaration of a Mineral Reserve.		
		(iv)	A statement of any legal proceedings, for example: land claims that may have an influence on the rights to prospect or mine for minerals, or an appropriate negative statement.		
		(v)	A statement relating to governmental/statutory requirements and permits as may be required, have been applied for, approved or can be reasonably be expected to be obtained. A review of risks that permits will not be received as expected and impact of delays to the project.		
1.6	**Royalties**	(i)	The royalties or streaming agreements that are payable in respect of each property.		
1.7	**Liabilities**	(i)	Any liabilities, including rehabilitation guarantees that are pertinent to the project. A description of the rehabilitation liability, including, but not limited to, legislative requirements, assumptions and limitations.		

			Exploration Results	Mineral Resources	Mineral Reserves
Section 2: Geological Setting, Deposit, Mineralisation					
2.1	**Geological Setting, Deposit, Mineralisation**	(i)	The regional geology.		
		(ii)	The project geology including deposit type, geological setting and style of mineralisation.		
		(iii)	The geological model or concepts being applied in the investigation and on the basis of which the exploration program is planned, along with a description of the inferences and assumptions made from this model.		
		(iv)	Data density, distribution and reliability and whether the quality and quantity of information are sufficient to support statements, made or inferred, concerning the deposit.		
		(v)	Significant minerals present in the deposit, their frequency, size and other characteristics, including a discussion of minor and gangue minerals where these will have an effect on the processing steps and the variability of each important mineral within the deposit.		
		(vi)	Significant mineralised zones encountered on the property, including a summary of the surrounding rock types, relevant geological controls, and the length, width, depth, and continuity of the mineralisation, together with a description of the type, character, and distribution of the mineralisation.		
		(vii)	The existence of reliable geological models and / or maps and cross sections that support interpretations.		

			Exploration Results	Mineral Resources	Mineral Reserves
Section 3: Exploration and Drilling, Sampling Techniques and Data					
3.1	**Exploration**	(i)	Data acquisition or exploration techniques and the nature, level of detail, and confidence in the geological data used (i.e., geological observations, remote sensing results, stratigraphy, lithology, structure, alteration, mineralisation, hydrology, geophysical, geochemical, petrography, mineralogy, geochronology, bulk density, potential deleterious or contaminating substances, geotechnical and rock characteristics, moisture content, bulk samples etc.). Data sets with all relevant metadata, such as unique sample number, sample mass, collection date, spatial location etc.		
		(ii)	The primary data elements (observation and measurements) used for the project and a description of the management and verification of these data or the database. Description of the following relevant processes: acquisition (capture or transfer), validation, integration, control, storage, retrieval and backup processes. If data are not stored digitally, presentation of hand-printed tables with well-organised data and information.		
		(iii)	Acknowledgement and appraisal of data from other parties, and reference to all data and information used from other sources.		
		(iv)	Distinction between data / information from the property under discussion and that derived from surrounding properties.		
		(v)	The methods for collar, inclination and down-hole survey, techniques and expected accuracies of data as well as the grid system used.		
		(vi)	Discussion on the sufficiency of the data spacing and distribution to establish the degree of geological and grade continuity appropriate for the estimation procedure(s) and classifications applied.		
		(vii)	Presentation of representative models and / or maps and cross sections or other two or three-dimensional illustrations of results showing location of samples, accurate drill hole collar positions, down-hole surveys, exploration pits, underground workings, relevant geological data, etc.		
		(viii)	The geometry of the mineralisation with respect to the drill hole angle because of the importance of the relationships between mineralisation widths and intercept lengths. Justification if only down-hole lengths are reported.		
3.2	**Drilling Techniques**	(i)	Type of drilling undertaken (e.g., core, reverse circulation, rotary air blast, etc.) and details (e.g., core diameter, triple or standard tube, whether core is oriented and if so, by what method, etc.).		
		(ii)	The geological and geotechnical logging of core and chip samples relative to the level of detail required to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.		
		(iii)	The nature of logging (qualitative or quantitative) and the use of core photography (or costean, channel, etc.).		
		(iv)	The total length and percentage of the relevant intersections logged.		
		(v)	Results of any downhole surveys of the drill hole (Results of any downhole deviation surveys or other surveys of the drill hole using downhole probes).		

			Exploration Results	Mineral Resources	Mineral Reserves
Section 3: Exploration and Drilling, Sampling Techniques and Data (continued)					
3.3	**Sample method, collection, capture and storage**	(i)	A description of the nature and quality of sampling (e.g., cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down-hole gamma sondes, or handheld or fixed-position XRF instruments, etc.), without these examples limiting the broad meaning of sampling.		
		(ii)	A description of the sampling processes, including sub-sampling stages to maximise representivity of samples, whether sample sizes are appropriate to the grain size of the material being sampled and any sample compositing.		
		(iii)	A description of each data set (e.g., geology, grade, density, quality, geo-metallurgical characteristics etc.), sample type, sample-size selection and collection methods.		
		(iv)	The nature of the geometry of the mineralisation with respect to the drill hole angle (if known). The orientation of sampling to achieve unbiased sampling of possible structures, considering the deposit type. The intersection angle. The down-hole lengths if the intersection angle is not known.		
		(v)	A description of retention policy and storage of physical samples (e.g., core, sample reject, etc.).		
		(vi)	A description of the method of recording and assessing core and chip sample recoveries and the results assessed, measures taken to maximise sample recovery and ensure representative nature of the samples, whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.		
		(vii)	The cutting of a drill-core sample, e.g., whether it was split or sawn and whether quarter, half or full core was submitted for analysis. Non-core sampling, e.g., whether the sample was riffled, tube sampled, rotary split etc.; whether it was sampled wet or dry; the impact of water table or flow rates on recovery and introduction of sampling biases or contamination from above. The impact of variable hole diameters, e.g., by the use of a calliper tool.		
3.4	**Sample Preparation and Analysis**	(i)	The identity of the laboratory(s) and its accreditation status and Registration Number. The steps taken by the Competent Person to ensure the results from a non-accredited laboratory are of an acceptable quality.		
		(ii)	The analytical method, its nature, the quality and appropriateness of the assaying and laboratory processes and procedures used and whether the technique is considered partial or total.		
		(iii)	A description of the process and method used for sample preparation, sub-sampling and size reduction, and the likelihood of inadequate or non-representative samples (i.e., improper size reduction, contamination, screen sizes, granulometry, mass balance, etc.).		
3.5	**Sampling Governance**	(i)	The governance of the sampling campaign and process, to ensure quality and representivity of samples and data, such as sample recovery, high grading, selective losses or contamination, core/hole diameter, internal and external QA/QC, and any other factors that may have resulted in or identified sample bias.		
		(ii)	The measures taken to ensure sample security and the Chain of Custody.		
		(iii)	The validation procedures used to ensure the integrity of the data, e.g., transcription, input or other errors, between its initial collection and its future use for modelling (e.g., geology, grade, density, etc.).		
		(iv)	The audit process and frequency (including dates of these audits) and disclose any material risks identified.		
3.6	**Quality Control/ Quality Assurance**	(i)	The verification techniques (QA/QC) for field sampling process, e.g., the level of duplicates, blanks, reference material standards, process audits, analysis, etc. Indirect methods of measurement (e.g., geophysical methods), with attention given to the confidence of interpretation. Reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used. QA/QC procedures used to check databases augmented with 'new' data have not disturbed previous versions containing 'old' data.		
3.7	**Bulk Density**	(i)	The method of bulk density determination with reference to the frequency of measurements, the size, nature and representativeness of the samples.		
		(ii)	Preliminary estimates or basis of assumptions made for bulk density.		
		(iii)	The representivity of bulk density samples.		
		(iv)	The measurement of bulk density for bulk material using methods that adequately account for void spaces (vugs, porosity etc.), moisture and differences between rock and alteration zones within the deposit.		

			Exploration Results	Mineral Resources	Mineral Reserves
Section 3: Exploration and Drilling, Sampling Techniques and Data (continued)					
3.8	**Bulk Sampling and/or trial-mining**	(i)	The location of individual samples (including map).		
		(ii)	The size of samples, spacing/density of samples recovered and whether sample sizes and distribution are appropriate to the grain size of the material being sampled.		
		(iii)	The method of mining and treatment.		
		(iv)	The degree to which the samples are representative of the various types and styles of mineralisation and the mineral deposit as a whole.		

			Exploration Results	Mineral Resources	Mineral Reserves
Section 4: Estimation and Reporting of Exploration Results and Mineral Resources and Mineral Reserves					
4.1	**Geological model and interpretation**	(i)	The nature, detail and reliability of geological information with which lithological, structural, mineralogical, alteration or other geological, geotechnical and geo-metallurgical characteristics were recorded.		
		(ii)	The geological model, construction technique and assumptions that forms the basis for the Exploration Results or Mineral Resource estimate. The sufficiency of data density to assure continuity of mineralisation and geology and provision of an adequate basis for the estimation and classification procedures applied.		
		(iii)	Any obvious geological, mining, metallurgical, processing, environmental, social, infrastructural, legal and economic factors that could have a significant effect on the prospects of any possible Exploration Target or deposit.		
		(iv)		Geological data that could materially influence the estimated quantity and quality of the Mineral Resource.	
		(v)		Consideration given to alternative interpretations or models and their possible effect (or potential risk) if any, on the Mineral Resource estimate.	
		(vi)		Geological discounts (e.g., magnitude, per reef, domain, etc.), applied in the model, whether applied to mineralised and / or un-mineralised material (e.g., potholes, faults, dykes, etc.).	
4.2	**Estimation and modelling techniques**	(i)	A detailed description of the estimation techniques and assumptions used to determine the grade and tonnage ranges for Exploration Targets.		
		(ii)		The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values (cutting or capping), compositing (including by length and/or density), domaining, sample spacing, estimation unit size (block size), selective mining units, interpolation parameters and maximum distance of extrapolation from data points.	
		(iii)		Assumptions and justification of correlations made between variables.	
		(iv)		Any relevant specialised computer program (software) used (with the version number) together with the parameters used.	
		(v)		The processes of checking and validation, the comparison of model information to sample data and use of reconciliation data, and whether the Mineral Resource estimate takes account of such information.	
		(vi)		The assumptions made regarding the estimation of any co-products, by-products or deleterious elements.	

			Exploration Results	Mineral Resources	Mineral Reserves
Section 4: Estimation and Reporting of Exploration Results and Mineral Resources and Mineral Reserves (continued)					
4.3	**Reasonable prospects for eventual economic extraction**	(i)		The geological parameters, including (but not be limited to) volume / tonnage, grade and value / quality estimates, cut-off grades, strip ratios, upper- and lower- screen sizes.	
		(ii)		The engineering parameters, including mining method, processing, geotechnical, hydrogeological and metallurgical) parameters, including assumptions made to mitigate the effect of deleterious elements. Dilution and mining recovery factors that might be applicable to convert in-situ Mineral Resources to Mineral Reserves.	
		(iii)		The infrastructure including, but not limited to, power, water, site-access.	
		(iv)		The legal, governmental, permitting, statutory parameters.	
		(v)		The environmental and social (or local community) parameters.	
		(vi)		The marketing parameters.	
		(vii)		The economic assumptions and parameters, including, but not limited to, commodity prices, sales volumes and potential capital and operating costs.	
		(viii)		Material risks.	
		(ix)		The parameters used to support the concept of 'eventual' in the case of Mineral Resources.	
4.4	**Classification Criteria**	(i)		The criteria and methods used as the basis for the classification of the Mineral Resources into varying confidence categories.	
4.5	**Reporting**	(i)	Specific grades / qualities and widths.		
		(ii)	The reporting of low and high-grades and widths, together with their spatial location to avoid misleading reporting of Exploration Results.		
		(iii)	A statement on whether grades are regional averages or if they are selected individual samples taken from the property under discussion.		
		(iv)		The detail of open pit, underground, residue stockpile, remnants, tailings, and existing pillars or other sources in a Mineral Resource statement.	
		(v)		A comparison with the previous Mineral Resource estimates, with an explanation of the reason for material changes. A comment on any historic trends (e.g., global bias).	
		(vi)		The basis for the estimate and if not 100%, the attributable percentage relevant to the entity commissioning the report.	
		(vii)	The basis of equivalent metal formulae.		

			Exploration Results	Mineral Resources	Mineral Reserves
Section 5: Technical Studies					
5.1	**Introduction**	(i)	Not applicable to Exploration Results or Exploration Targets.	The level of study – Scoping, Pre-Feasibility, Feasibility or ongoing Life of Mine	The level of study – Pre-Feasibility, Feasibility or ongoing Life of Mine.
		(ii)			A summary table of the Modifying Factors used to convert the Mineral Resource to Mineral Reserve.
5.2	**Mining Design**	(i)	Not applicable to Exploration Results or Exploration Targets.	Assumptions regarding mining methods and parameters when estimating Mineral Resources.	
		(ii)			All Modifying Factors and assumptions made regarding mining methods, minimum mining dimensions (or pit shell) and internal and, if applicable, external planned and unplanned mining dilution and mining losses used for the techno-economic study and signed-off, such as mining method, mine design criteria, infrastructure, capacities, production schedule, mining efficiencies, grade control, geotechnical and hydrological considerations, closure plans, and personnel requirements.
		(iii)		Mineral Resource models used in the study.	
		(iv)		The basis of the cut-off grade(s).	The basis of (the adopted) cut-off grade(s) or quality parameters applied, including metal equivalents if relevant.
		(v)			The mining method(s) to be used.
		(vi)			For open cut mines, a discussion of pit slopes, slope stability, and strip ratio.
		(vii)			For underground mines, a discussion of mining method, geotechnical considerations, mine design characteristics, and ventilation/cooling requirements.
		(viii)			Discussion of mining rate, equipment selected, grade control methods, geotechnical and hydrogeological considerations, health and safety of the workforce, staffing requirements, dilution, and recovery.
		(ix)			Optimisation methods and software used in planning, including a discussion of the constraints.

			Exploration Results	Mineral Resources	Mineral Reserves
Section 5: Technical Studies					
5.3	**Metallurgical and Testwork**	(i)	Not applicable to Exploration Results or Exploration Targets.		The source of the samples, the representivity of the potential feed and the techniques used to obtain the samples, laboratory and metallurgical testing techniques.
		(ii)			The basis for assumptions or predictions regarding metallurgical amenability and any preliminary mineralogical test work should already be carried out.
		(iii)		The possible processing methods and any processing factors that could have a material effect on the likelihood of eventual economic extraction. The appropriateness of the processing methods to the style of mineralisation.	The processing method(s), equipment, plant capacity, efficiencies, and personnel requirements.
		(iv)			The nature, amount and representativeness of metallurgical test work undertaken and the recovery factors used. A detailed flow sheet / diagram and a mass balance, especially for multi-product operations from which the saleable materials are priced for different chemical and physical characteristics.
		(v)			Assumptions or allowances made for deleterious elements and the existence of any bulk-sample or pilot-scale test work and the degree to which such samples are representative of the ore body as a whole.
		(vi)			Disclosure of whether metallurgical process is well-tested technology or novel in nature and if novel, justification of its use in Mineral Reserve estimation.
5.4	**Infrastructure**	(i)	Not applicable to Exploration Results or Exploration Targets.	Comment regarding the current state of infrastructure or the ease with which the infrastructure can be provided or accessed and its effect on reasonable prospects for eventual economic extraction.	
		(ii)			Demonstration that the necessary facilities have been allowed for (which may include, but not be limited to, processing plant, tailings dam, leaching facilities, waste dumps, road, pipeline, rail or port facilities, water and power supply, offices, housing, security, resource sterilisation testing etc.). Provision of detailed maps showing locations of facilities.
		(iii)			Statement showing that all necessary logistics have been considered.

			Exploration Results	Mineral Resources	Mineral Reserves
Section 5: Technical Studies (continued)					
5.5	**Environmental and social**	(i)	Not applicable to Exploration Results or Exploration Targets.	Confirmation that the company holding the tenement has addressed the host country environmental legal compliance requirements and any mandatory and/or voluntary standards or guidelines to which the company subscribes.	
		(ii)		Identification of the necessary permits that will be required and their status, and where not yet obtained, and confirmation that there is a reasonable basis to believe that all permits required for the project will be obtained in a timely manner.	
		(iii)		Any sensitive areas that may affect the project as well as any other environmental factors including Interested and Affected Party (I&AP) and/or studies that could have a material effect on the likelihood of eventual economic extraction. Possible means of mitigation.	
		(iv)		Legislated social management programmes that may be required and content and status of these.	
		(v)		Material socio-economic and cultural impacts that need to be managed, and where appropriate the associated costs.	
5.6	**Market Studies and Economic criteria**	(i)	Not applicable to Exploration Results or Exploration Targets.	Technical and economic factors likely to influence the prospect of economic extraction. Refer to Articles 7.1 to 7.24.	Valuable and potentially valuable product(s) including suitability of products, co-products and by products to market.
		(ii)			Product to be sold, customer specifications, testing, and acceptance requirements. Existence of a ready market for the product and whether contracts for the sale of the product are in place or expected to be readily obtained. Price and volume forecasts and the basis for the forecast.
		(iii)			Economic criteria used for the study, such as capital and operating costs, exchange rates, revenue / price curves, royalties, and streaming agreements, cut-off grades, reserve pay limits.
		(iv)			Summary description, source and confidence of method used to estimate the commodity price/value profiles used for cut-off grade calculation, economic analysis and project valuation, including applicable taxes, inflation indices, discount rate and exchange rates.
		(v)			Assumptions made concerning production cost including transportation, treatment, penalties, exchange rates, marketing and other costs. Allowances should be made for the content of deleterious elements and the cost of penalties.
		(vi)			Allowances made for royalties and streaming agreements payable, both to Government and private entities.
		(vii)			Ownership, type, extent and condition of plant and equipment that is significant to the existing operation(s).
		(viii)			Environmental, social and labour costs.
5.7	**Risk Analysis**	(i)	Not applicable to Exploration Results or Exploration Targets.	An assessment of technical, environmental, social, economic, political and other key risks to the project. Actions that will be taken to mitigate and/or manage the identified risks.	

			Exploration Results	Mineral Resources	Mineral Reserves
Section 5: Technical Studies (continued)					
5.8	**Economic Analysis**	(i)	Not applicable to Exploration Results or Exploration Targets.	The basis on which reasonable prospects for eventual economic extraction has been determined. Any material assumptions made in determining the 'reasonable prospects for eventual economic extraction'.	The inclusion of any Inferred Resources in the Pre-Feasibility and Feasibility Studies economic analysis. The sensitivity to the inclusion of any Inferred Resources.
		(ii)			An economic analysis for the project that includes after tax Cash Flow forecast on an annual basis using Mineral Reserves or Mineral Resources OR an annual production schedule for the life of the project, which has been used at the relevant level Pre- feasibility or Feasibility Study. Accounting for royalties and streaming agreements.
		(iii)			A discussion of net present value (NPV), internal rate of return (IRR) and payback period of capital.
		(iv)			Sensitivity or other analysis using variants in commodity price, grade, capital and operating costs, or other significant parameters, as appropriate and discuss the impact of the results.

			Exploration Results	Mineral Resources	Mineral Reserves
Section 6: Estimation and Reporting of Mineral Reserves					
6.1	**Estimation and modelling techniques**	(i)		A description of the Mineral Resource estimate used as a basis for the conversion to a Mineral Reserve.	
		(ii)			A comparison between the two possibilities, the one with inclusion of Inferred Mineral Resources and the one without inclusion, in such a way so as not to mislead the investors. The quantum of the Inferred Mineral Resources included and the sensitivity of the inclusion to the study.
		(iii)			A Mineral Reserve Statement in sufficient detail indicating if the mining is open pit or underground plus the source and type of mineralisation, domain or ore body, surface dumps, stockpiles and all other sources.
		(Iv)			Reconciliation of historic reliability and reconciliation of the performance parameters, assumptions and modifying factors. A comparison with the previous Reserve quantity and qualities, if available. Where appropriate, any historic trends (e.g., global bias).
6.2	**Classification Criteria**	(i)			Criteria and methods used as the basis for the classification of the Mineral Reserves into varying confidence categories, which should be based on the Mineral Resource category, and include consideration of the confidence in all the Modifying Factors.
6.3	**Reporting**	(i)			The proportion of Probable Mineral Reserves, which have been derived from Measured Mineral Resources (if any), including the reason(s) therefore.
		(ii)			The inclusion in a Mineral Reserve statement of the detail of open pit, underground, residue stockpile, remnants, tailings, and existing pillars or other sources.
		(iii)			A comparison with the previous Mineral Reserve estimates. Any historic trends (e.g., global bias).
		(iv)		The inclusion or exclusion of Mineral Resources in Mineral Reserves.	

			Exploration Results	Mineral Resources	Mineral Reserves
Section 7: Audits and Reviews					
7.1	**Audits and Reviews**	(i)	Type of review /audit (e.g., independent, external), area (e.g., laboratory, drilling, data, environmental compliance etc.), date and name of the review er(s) together w ith their recognised professional qualifications. The level of review /audit (desk-top, on-site comparison w ith standard procedures, or endorsement w here auditor/review er has checked the w ork to the extent they stand behind it as if it w ere their ow n w ork).		
		(ii)	The level and conclusions of relevant audits or review s. Significant deficiencies and remedial actions required.		

			Exploration Results	Mineral Resources	Mineral Reserves
Section 8: Other Relevant information					
8.1	**Other relevant information**	(i)	Other relevant and material information not discussed elsew here.		

			Exploration Results	Mineral Resources	Mineral Reserves
Section 9: Competent Person					
9.1	**Qualification of Competent Person(s) and key technical staff**	(i)	The full name of the Competent Person, their registration number and the name of the professional organisation (PO or RPO), of w hich the Competent Person(s) is a member. The relevant experience of the Competent Person(s) and other key technical staff w ho prepared and are responsible for the Public Report.		
	Relationship to the issuer	(ii)	The Competent Person's relationship to the issuer of the report, if any.		
		(iii)	The inclusion of the Consent Form and Compliance Statement of the Competent Person (see Appendix 2). Such Form and Statement should include the date of sign-off and the effective date of the report.		

TABLE 2 - GUIDELINE FOR TECHNICAL STUDIES

This guideline to Technical Studies is provided as a guide to the compilation of the various studies relating to Mineral Resources and Mineral Reserves. It is designed to be read in conjunction with Table 1.

Scoping Studies, Pre-Feasibility Studies, Feasibility Studies (and on-going life-of-mine studies) analyse and assess the same geological, engineering, and economic factors with increasing detail and precision. Therefore, the same criteria may be used as a framework for reporting the results of all three studies.

TABLE 2 – GUIDELINE FOR TECHNICAL STUDIES			
Item	**Scoping Study**	**Prefeasibility Study**	**Feasibility Study**
Resource categories	Mostly Inferred	Mostly Indicated	Measured and Indicated
Reserve categories	None	Mostly Probable	Proved and Probable
Mining method and geotechnical constraints	Conceptual	Preliminary Options	Detailed and Optimised
Mine design	None or high-level conceptual	Preliminary mine plan and schedule	Detailed mine plan and schedule
Scheduling	Annual approximation	3-monthly to annual	Monthly for much of payback period
Mineral Processing	Metallurgical test work	Preliminary Options	Detailed and Optimised
Permitting - (water, power, mining, prospecting & environmental)	Required permitting listed	Preliminary applications submitted	Authorities engaged, and applications submitted
Social licence to operate	Initial contact with local communities	Formal communication structures and engagement models in place	Contracts/agreements in place with local communities and municipalities (local government)
Risk tolerance	High	Medium	Low

Item	Scoping Study	Prefeasibility Study	Feasibility Study
Basis of Capital Estimate			
Civil/structural, architectural, piping/HVAC, electrical, instrumentation, construction labour, construction labour productivity, material volumes/amounts, material/equipment, pricing, infrastructure	Order-of-magnitude based on historic data or factoring. Engineering < 5% complete.	Estimated from historic factors or percentages and vendor quotes based on material volumes. Engineering at 5-25% complete.	Detailed from engineering at 20% to 50% complete, estimated material take-off quantities, and multiple vendor quotations
Contractors	Included in unit cost or as a percentage of total cost	Percentage of direct cost by area for contractors; historic for subcontractors	Written quotes from contractor and subcontractors
Engineering, procurement, and construction management (EPCM)	Percentage of estimated construction cost	Key parameters, Percentage of detailed construction cost	Detailed estimate
Owner's costs	Factored, benchmark, database or historic estimate	Budgeted quotes on key parameters and estimates from experience, factored from similar project	Detailed estimate
Environmental compliance / Closure Cost	Factored from historic estimate	Estimate from experience, factored from similar project	Estimate prepared from detailed zero-based budget for design engineering and specific permit requirements
Escalation	Not considered	Based on entity's current budget percentage	Based on cost area with risk
Accuracy Range (Order of magnitude)	± 25-50%	± 15-25%	± 10-15%
Contingency Range (Allowance for items not specified in scope that will be needed)	± 30%	15-30%	10% - 15% (actual to be determined based on risk analysis)

Item	Scoping Study	Prefeasibility Study	Feasibility Study
Basis of Operating Costs			
Operating Costs	Order-of-magnitude based on historic data or factoring	Estimated from historic factors or percentages and vendor quotes based on material volumes	Detailed estimate
Operating quantities	General	Specific estimates with some factoring	Detailed estimates
Unit costs	Based on historic data for factoring	Estimates for labour, power, and consumables, some factoring	Letter quotes from vendors; minimal factoring
Accuracy Range	± 25-50%	15% - 25%	10% - 15%
Contingency Range (Allowance for items not specified in scope that will be needed)	± 25%	± 15%	+ 10% (actual to be determined based on risk analysis)

APPENDIX 1 – GLOSSARY OF GENERIC TERMS AND SYNONYMS

Certain words within the Code, in general, are used when it is possible to give a unique meaning to them by certain commodity groups within the industry. A list of general terms and other terms which can be accepted as synonyms with regards to the purposes of the Code have been listed below to avoid unnecessary repetition.

Generic Term	Intended Generalised Meaning
Assessment Criteria	Factors used or assessed when performing a judgement, opinion, or analysis.
Basis of Estimate	Project management tool to document projected costs considering available historical and current cost and schedule data. The basis of estimate defines all aspects of a cost estimate at a set point in time.
Benchmark	Comparing a selected metric against other measurements to provide a point of reference. Benchmarks can be based on experience, actual data, or regulatory requirements.
Beneficiation (Processing, Preparation, Concentration, Smelting and Refining)	Physical and/or chemical separation of constituents of interest from a larger mass of material. Methods employed to prepare a final marketable product from material as mined. Examples include screening, flotation, magnetic separation, leaching, washing, roasting, smelting and refining etc.
Clawback Rights	A financial or other benefit that is given but is later taken back under defined circumstances.
Commercially Sensitive Information	Privileged or proprietary information that, if disclosed, could prejudice commercial interests.
Commodity Price	Market or negotiated price associated with the purchase or sale of a mineral or material.
Company	A person, partnership, organization, or business that has a legal and separately identifiable existence that owns a mineral property or project, or that has an interest in a mineral property or project.
Competent Person	This term is defined in Article 3.6. In other CRIRSCO jurisdictions, slightly different definitions may be used to account for local professional requirements and regulations.
Consent	Written permission provided by a Competent Person to publish documentation in the form and context in which it will appear on publication.
Contingency	An allowance for items not specified in scope that will be needed, or unanticipated changes in costs, as for example adverse foreign exchange consequences. Contingencies are additive to the cost estimates. Where the data on which the estimate basis are limited, contingency may be specified for the entire estimate. Where sufficient data exist, contingency should be set by facility or cost element (typically as a percentage addition), and a summary of all contingencies should be presented as part of the summary of capital and operating cost estimates.
CRIRSCO	Committee for Mineral Reserves International Reporting Standards.

Generic Term	Intended Generalised Meaning
Cut-off grade (Product Specifications)	The lowest grade, or quality, of mineralised material that qualifies as economically mineable and available in a given deposit. May be defined on the basis of economic evaluation, or on physical or chemical attributes that define an acceptable product.
Deposit Type	Defines the deposit type whether it is a magmatic, volcanic, hydrothermal, or sedimentary related type (e.g., porphyry, skarns, massive sulphides, epithermal, placer deposits etc.).
Diamond (Gemstone)	Diamonds and other gemstones with same characteristics.
Dilution	Low or zero grade (waste) material that is mined and mixed during the course of mining operations and thereby forms part of the Mineral Reserve.
Discount Rate	The interest rate used in discounted cash flow analysis to determine the net present value of future cash flows.
Economic Studies	Pre-Feasibility, Feasibility or life of mine plans that demonstrate the economic viability of Mineral Reserves. Scoping Studies that demonstrate the potential economic viability of Mineral Resources.
Energy Raw Materials	Peat, Lignite, Coal, methane gas related to coal, Anthracite, Asphaltite, Bituminous Schist, Bituminous Shale.
Environmental, Social and Governance (ESG) (ESG Considerations/ performance/ factors, Sustainability, Health and safety)	Environmental, Social, and Governance (ESG) refer to the three central factors in assessing the sustainability and societal considerations of a project or operation. Investors and financiers increasingly use these criteria to determine the potential financial performance of a company.
Exploration Information	Includes Exploration Targets and Exploration Results. An Exploration Target represents a geological concept to be tested to determine the existence of a Mineral Deposit. Information to be sought by exploration is termed an Exploration Target. Information gained through exploration is termed Exploration Results.
Exploration Target	This term is defined in Article 5.1.
Exploration Results	This term is defined in Article 6.1.
Extrapolation	Extrapolation is the process of estimating, produces estimates at locations beyond known observations, and has a greater uncertainty that interpolation.
Feasibility Study (FS)	This term is defined in Article 9.8.
Gangue Minerals	The commercially worthless materials that surrounds a mineral having economic value in a mineral deposit.
Grade (Quality, Assay, Analysis (Value))	Any physical or chemical measurement of the characteristics of the material of interest in samples or product. The term quality may have a special meaning for diamonds and other gemstones. When numbers are reported, the unit of measurement must be indicated.

Generic Term	Intended Generalised Meaning
Indicated Mineral Resource	This term is defined in Article 7.8.
Industrial Minerals	Solid geological materials which are mined for their commercial value, which are not fuel and are not sources of metals. Kaolin, Halloysite, Endellite, Anaxite, Bentonite, Montmorillonite, Baydilit, Saponite, Hectorite, Illite, Vermiculite, Allofan, Minalogite, Chlorite, Sepiolite, Gypsum, Anhydrite, Alunite , Halite, Calcium, Magnesium, Chlorine, Nitrate, Flor, Bromine and other salts, Boron salts (and other Boron minerals), Strontium salts, Barite, Wollastonite, Talc, Pyrophyllite, Diatomite, Olivine, Dunite, Sillimanite, Andalusite, Dumortiorite, Kyanite, Phosphate, Apatite, Asbestos, Magnesite, Huntite, Natural Soda Minerals (Trona, Nalcolite, Davsonite), Zeolite, Pumice, Pekstayn, Perlite, Obsidian, Graphite, Sulfur, Fluorite, Cryolite, Sandpaper, Corundum, Diasporite, Quartzite, Quartzite and Quartz sand containing at least 80% SiO_2 in its composition, Feldispate (Feldspar and Feldspathoid group minerals), Mica (Biotite, Muscovite, Sericite, Lepidolite, Phlogopite), Nepheline Syenite, Chalcedony (Chert).
Inferred Mineral Resource	This term is defined in Article 7.4.
Infrastructure	The basic physical and organizational structures and facilities needed for mine operation.
Interpolation	Interpolation refers to estimation supported by sample data at points located between the data.
Interpretation	Interpretation refers to explanation, clarifications and comments of the Competent Person about Mineral Resources and Mineral Reserves.
Inventory Reports	Non-public reports providing tonnages and grades for Mineral Deposits that may not consider the application of reasonable prospects for economic extraction.
Legal Requirements	Fundamental criteria taken into consideration when evaluating the current or future legal regulations that may impact on a mine or project.
Life of Mine Plan (LoMP)	A design and financial/economic study of an existing operation in which appropriate assessments have been made of existing geological, mining, metallurgical, economic, marketing, legal, environmental, social, governmental, engineering, operational and all other Modifying Factors, which are considered in sufficient detail (to Pre-Feasibility level) to demonstrate that continued extraction is reasonably justified.
Materiality Principle	Public Reports must contain all relevant information for the purpose of making a reasoned and balanced judgement regarding the Exploration Results, mineral processing results if any, Mineral Resources or Mineral Reserves being reported.
Measured Mineral Resource	This term is defined in Article 7.10.
Metal Content/Mineral Content	Amount of metal contained in a specified volume.

Generic Term	Intended Generalised Meaning
Metal Equivalent	A term used where mineralisation that has several different metals of economic value has those different metal values converted to the corresponding value of a single metal. Metal equivalents must take into account commodity prices and metallurgical recovery. Metal equivalent calculations are often used to compare similar deposits that have slightly different metal ratios.
Metallic Deposits/ Polymetallic Deposits	Mineral deposits mined to extract metal elements.
Metallic Minerals	Gold, Silver, Platinum, Copper, Lead, Zinc, Iron, Pyrite, Manganese, Chrome, Mercury, Antimony, Tin, Vanadium, Arsenic, Molybdenum, Tungsten (Wolframite, Scheelite), Cobalt, Nickel, Cadmium, Bismuth, Titanium (Ilmenite, Rutile), Aluminum (Bauxite, Gibbsite, Bohemite), Rare earth elements (Cerium Group, Yitrium Group) and Rare earth minerals (Bastnasite, Monazite, Xenotime, Serit, Oyksenit, Samarskite, Fergusonite), Cesium, Rubidium, Beryllium, Indium, Gallium, Thallium, Zirconium, Hafnium, Germanium, Niobium, Tantalum, Selenium, Tellurium, Rhenium, Lithium.
Metallurgical Factor	One of a set of fundamental metallurgical or processing criteria taken into consideration when evaluating the recoveries or processing routes for a mine or project.
Mine Closure	The period of time when active mining has ceased, and final decommissioning and mine reclamation is underway. Mine closure is considered to be complete when an entity has demonstrated to the satisfaction of the appropriate regulatory authorities that the mining project has reached a safe, stable, self-sustaining, and rehabilitated state.
(Mineral) Asset	An asset in material or physical form that has a long-term existence, or is acquired for the purposes of mining or processing activities, e.g., land, machinery, equipment, plant, etc.
Mineral Deposit	A Mineral Deposit (including coal, dimension stone, diamonds, and industrial minerals) is an accumulation of mineral(s) of potential economic interest within estimated geological boundaries.
Mineral Property	License area for which mineral exploration or operation rights are held.
Mineral Reserve (Ore Reserve)	This term is defined in Article 8.1.
Mineral Resource	This term is defined in Article 7.1.
Mineralisation (Type of Deposit, Orebody, Style of Mineralisation)	Any single mineral or combination of minerals occurring in a mass, or deposit, of economic interest. The term is intended to cover all forms in which mineralisation might occur, whether by class of deposit, mode of occurrence, genesis or composition.
Mineralised Waste	Waste rock that contains mineralization that grades below the currently economic cut-off.
Mining (Quarrying)	All activities related to extraction of metals, minerals and gemstones from the earth whether surface or underground, and by any method (e.g., quarries, open cast, open cut, solution mining, dredging etc.).
Mining Factor	One of a set of fundamental mining criteria taken into consideration when evaluating the mining methods for a mine or project.

Generic Term	Intended Generalised Meaning
Mining Losses	Mining loss refers to any unrecoverable ore that must be left behind during mining, or any ore that cannot be recovered or processed through the process plant. Synonym for ore loss.
Mining Schedule	A practical, realistic, and optimal strategy for mineral extraction that has been developed after review of all material options and scenarios, including investment and scheduling alternatives (e.g., equipment sizes and placements), mineral definition (e.g., cut-off grades, dilution), access mechanics (e.g., shaft or ramp location, pit limits), and mineral and waste removal and haulage sequences.
Modifying Factors	This term is defined in Article 4.7.
Overburden	Portion of the deposit with a very low or non-existent content of the minerals of interest, which is (sometimes) not put through the metallurgical process and must be discarded after being mined.
Pre-Feasibility Study (PFS)	This term is defined in Article 9.7.
Probable Mineral Reserve	This term is defined in Article 8.7.
Process Flow Sheet	A graphical representation of the unit operations required to produce a saleable product and to prepare tailings for suitable disposal. The unit operations are arranged sequentially beginning with the arrival of mineral at the processing facility and ending at shipment of the end product(s) off site and the discharge of tailings to the tailings facilities. The level of detail increases as projects progress. For a Scoping Study, the flow sheet may simply be a block flow sheet (flow chart) listing the proposed unit operations for the conceptual process design. For Pre-Feasibility and Feasibility Studies, the flow sheets should represent the process in sufficient detail to develop capital cost estimates required to meet the reported level of accuracy of the study. This includes such detail as pumps, number of equipment pieces and sizes, chutes, bins, and flow sheets for support areas such as water management, reagent storage and mixing, and tailings treatment.
Proved Mineral Reserve (Proven Mineral Reserve)	This term is defined in Article 8.9.
Public Reports	This term is defined in Article 2.9.
Qualified Person	The term is used in Canada for Competent Person.
Recovery (Yield)	The percentage of material of initial interest that is extracted during mining and/or processing. A measure of mining or processing efficiency.
Reference Point	Location where product is sold to the customer; may occur at the mine mouth, plant gate, port, or smelter.
Regulatory (Governmental)	Regulatory factors include external governmental and other regulatory factors, whether specified by national, regional or local governments or other regulatory authorities, including stock exchange regulators. Regulatory factors include the fiscal regime, applicable legislation, legislation on production sharing, royalties, limits on employment of expatriates, control of infrastructure, issue of, and terms and conditions applied to licences for exploration and mining, etc.

Generic Term	Intended Generalised Meaning
Remnant	A part or quantity of mineral or mineralization that is left after the greater part of the mineral or mineralization has been mined.
Run of Mine (RoM)	Mined ore in its natural, unprocessed state prior to any beneficiation or processing activity being undertaken.
Saleable Coal Reserves	For coal at specified moisture and quality, that is available for sale after beneficiation; similar definition can apply to industrial minerals and other bulk commodities.
Saleable Product	The material or product that can be sold or marketed.
Sampling	A sample taken from the outcrop surface of the rock or soil which shows physical, chemical, grade, petrographical properties after relative chemical analysis results.
Segregation	Seperation of the topsoil.
Scoping Study	This term is defined in Article 9.3.
Socio-economic Impact	A strong effect on the existing socio-economic status that will affect someone or something.
The UMREK Code	The National Code for Public Reporting of Exploration Results, Mineral Resources and Mineral Reserves of Türkiye.
Tonnage (Quantity, Volume)	An expression of the amount of material of interest irrespective of the units of measurement (which should be stated when figures are reported).
Transparency Principle	The principle of transparency requires the readers of public reporting to be provided with sufficient information. Information needs to be clear, free from ambiguity, comprehensible to the reader or listener of the report; the information should not misguide the reader through deficiencies and negligence; the Competent Person must have a grasp of material information.
Waste	Substance or material in the form of solid or sludge resulting from exploration, extraction, beneficiation or storage of minerals.

APPENDIX 2 – COMPETENT PERSON'S CONSENT FORM AND COMPLIANCE STATEMENT

Reports describing the Exploration Targets, Exploration Results, Mineral Resources or Mineral Reserves reported by companies, are under the responsibility of the company acting through an Executive Board, and pursuant to Article 3.1 "Public report must be based on, and fairly reflect the information and supporting documentation prepared by or under the direction of and signed by a Competent Person". In addition, Article 3.4 requires, "The issue of a Public Report requires the written consent of the Competent Person(s), prior to release of the report, as to the form and context in which it appears".

A Competent Person's Consent Form, containing the terms of the UMREK Code, has been developed to help Competent Persons and companies to conform to these requirements and also to emphasise the need for the companies to obtain the prior written consent of the Competent Person, with regards to the form and context of the material to be included in the report.

Completion of a consent form is advised regardless of whether it is in the given format or in an equivalent format, and it ensures the previously signed required consent form can be acquired simply.

It is accepted as a leading practice to have a Competent Person's professional colleague to witness the consent form, and it is strongly encouraged.

The Competent Person's consent form or other documents related Competent Person's written consent must be retained by the company, and Competent Person must ensure that the consent form can be promptly provided by the company.

UMREK, 2023

(Letterhead Text of Competent Person or Employer)

CONSENT FORM OF COMPETENT PERSON

Requirements conforming to BİST or articles related to Precious Minerals and Precious Stones Market and to Article 3.6 of the UMREK Code

(Written Statement of Consent)

Report Name

_____

(*Insert the name or title of the report to be publicly declared*)

_____

(Insert name of the company releasing the report)

_____

(Insert name of the deposit subjecting to the report)

If there is insufficient space, continue on the following page and sign it the same way as the original page.

_____

(Report date)

STATEMENT

I/We,

_____

(Insert full name (names), profession and qualifications)

confirm that I am the Competent Person with regards to report and:

- I have read and understood the requirements of the UMREK Code for Reporting Exploration Results, Mineral Resources and Mineral Reserves. The Report has been prepared in accordance with the UMREK Code.
- I accept that I am the Competent Person defined by the UMREK Code 2023, having 7 years of experience that is relevant to the style of mineralization and type of deposit specified in the report and to the activity for which I am accepting responsibility.
- I am a member of a 'professional organization', recognised by UMREK.
- I declare that I am a Competent Person as defined in the UMREK Code and "work undertaken or services rendered".
- I have reviewed the report to which this Consent Statement applies.
- I declare that this report appropriately reflects the Competent Person's view.

To prepare the documents related to _____ *(insert name of the mine)* mine, basis of the report for the period ending on _____ *(insert Mineral Resource/Mineral Reserve estimation date)*,

I am a full time employee of the below given company:

_____

(Insert company name and address)

or

I/We am a consultant working for the below given company:

_____

(Insert company name and address)

and I am working in connection with the below given company:

_____

(Insert company name and address)

Including any issues that can be perceived as a conflict of interest by the investors, I have informed the company that will submit the report about the exact nature of the relationship between myself and the company.

I am not aware of any material fact or material change with respect to the subject matter of the Report that is not reflected in the Report, the omission of which would make the Report misleading.

I verify that the Report is fairly and accurately reflecting in the form and context in which it appears, the information in my supporting documentation relating to the Exploration Targets, Exploration Results, Mineral Resources and / or Mineral Reserves *(select as appropriate).*

At the effective date of the Report, to the best of my knowledge, information and belief, the Report contains all scientific and technical information that is required to be disclosed to make the Report not misleading.

Competent Person's Signature:	Date:
Professional Membership (insert name of professional organization):	Membership No:
Witness' signature:	Insert name and address of witness:

CONSENT

I consent to the release of the report and this Consent Statement by the directors of:

_____

(Name of the company publishing the report)

Competent Person's Signature:	Date:
Professional Membership (insert name of professional organization):	Membership No:
Witness' signature:	Insert name and address of witness:

Relevant experience of the Competent Person and site inspection details:

Additional deposits under the scope of the report, related to undersigned Competent Person accepting responsibility:

Additional Reports related to the deposit on which the undersigned Competent Person has accepted responsibility:

Competent Person's Signature:	Date:
Professional Membership (insert name of professional organization):	Membership No:
Witness signature:	Insert name and address of witness:

COMPLIANCE STATEMENT

The required compliance statement forms should be as provided below (please ignore any non-applicable items).

With regards to Public Reporting, Exploration Targets, Exploration Results at the initial stages or with amended content, Mineral Resources or Mineral Reserves, or company annual reports;

- *If the required information is available in the report:*

  Information given in the report in relation to Exploration Targets, Exploration Results, Mineral Resources or Mineral Reserves are based on data compiled by (Insert name of Competent Person). The Competent Person in question is a member of a 'professional organization' recognised by UMREK (Select the appropriate one and indicate the name of the professional organization of the Competent Person and the membership level note of the Competent Person).

- *If the required information is available in the report appendix:*

  Information given in the report appendix in relation to Exploration Targets, Exploration Results, Mineral Resources or Mineral Reserves are based on information compiled by (Insert name of Competent Person). The Competent Person in question is a member of a 'professional organization' recognised by UMREK (Select the appropriate one and indicate the name of the professional organization of the Competent Person and the membership level note of the Competent Person).

- *If the Competent Person is a full-time employee of the company:*

  (Insert name of Competent Person) is a full-time employee of the company.

- *If the Competent Person is not a full-time employee of the company:*

  (Insert name of Competent Person) is employed by (insert name of Competent Person's employer).

- *The full nature of the relationship between the Competent Person and reporting company must be declared together with the details of the Competent Person. This declaration has to outline or clarify any issues which could be perceived by the investors as a conflict of interest.*

- *For all reports:*

  (Insert name of Competent Person) has sufficient experience about the pledged activity and the relevant mineral type or mineralization to be classified as a Competent Person as described in the UMREK Code. (Insert name of Competent Person) consents that the issues based on his knowledge are included in the report.

For any Public Report that is based on a previously issued Public Report that refers to Exploration Results, Mineral Resources or Mineral Reserve estimations:

In case where a Competent Person has previously provided a written consent for the findings to be included in a report, the company presenting this information to the market must indicate the report's name, date and the reference of the original resource.

- *Information has been taken from the report titled (report name) and issued on (insert date) and can be accessed on (web-site name) website. With regards to the data given in the original market announcement and in the Mineral Resource or Mineral Reserve estimations, the company confirms that all monetary assumptions and technical parameters supporting the estimations in the related market announcement remain valid and they have not been changed materially. Company verifies that the findings of the Competent Person have not been changed in form and context from the original publication.*

Companies must be aware that this exemption is not valid for subsequent information in the company annual report.

APPENDIX 3 – REPORTING OF MINERALISED FILL, PILLARS, LOW GRADE MINERALISATION, STOCKPILES, DUMPS AND TAILINGS

Code

A3-1 The Code is applied when reporting all potentially economic materials. This can include mineralised fill, remnants, pillars, low grade mineralisation, stockpiles, dumps and tailings (remnant materials) where there are reasonable prospects for eventual economic extraction in the case of Mineral Resources, and where extraction is reasonably justifiable in the case of Mineral Reserves.

A3-2 Unless specified otherwise, Articles 1 to 13 of the Code (including Figure 1) apply.

A3-3 Table 1, as part of the Code, should be considered persuasive when reporting on mineralised fill, remnants, pillars, low grade mineralisation, stockpiles, dumps and tailings.

A3-4 Any mineral-bearing material defined in this Article, is thought to be similar to in situ mineralization in terms of Mineral Resource and Mineral Reserve reporting. Assessments related to the extraction of such mineral-bearing materials must be carried out by experienced and professional people.

A3-5 If there are no reasonable prospects that the mineral-bearing materials defined in this Article can be operated wholly or partially in economic terms, such materials cannot be categorised as a Mineral Resource nor as a Mineral Reserve.

A3-6 If some parts of the mineral-bearing materials are currently sub-economic, and there is a reasonable expectation that these materials can become economic in the future, then these materials can be categorised as a Mineral Resource.

A3-7 If technical and economic studies indicate that the material can be mined in economic terms under the assumed realistic conditions, then the material can be classified as a Mineral Reserve.

Guidance

The above Articles apply equally to low grade in situ mineralisation, sometimes referred to as 'mineralised waste' or 'marginal grade material', and often intended for stockpiling and treatment towards the end of mine life.

For clarity of understanding, it is recommended that tonnage and grade estimates of such material be itemised separately in Public Reports, although they may be aggregated with total Mineral Resource and Mineral Reserve figures.

Stockpiles are defined to include both surface and underground stockpiles, including broken ore in stopes, and can include ore currently in the ore storage system.

Mineralised material in the course of being processed (including leaching), if reported, should be reported separately.

APPENDIX 4 – REPORTING OF COAL EXPLORATION RESULTS, RESOURCES AND RESERVES

Code

A4-1 The Articles in this appendix address matters that relate specifically to the public reporting of Coal Exploration Results, Coal Resources and Coal Reserves.

A4-2 Unless specified otherwise, Articles 1 to 13 of the Code (including Figure 1) apply.

A4-3 Table 1, as part of the Code, should be considered persuasive when reporting on Coal Resources and Reserves.

Guidance

In line with the goals related to Public Reporting, the term 'coal' must be used instead of 'mineral and ore', 'quality' instead of 'grade', 'coal deposit' instead of 'mineralization', and 'coal content' instead of 'yield', when it comes to conditions related to coal. All references to 'metallurgical' Modifying Factors for Coal Reserves must be replaced by 'coal beneficiation procedures' Modifying Factors.

When reporting Coal Reserves, a clear distinction must be made between reserves where mining losses have been taken into account (sometimes described as recoverable or run of mine) and saleable product where both mining and processing losses have been included (sometimes referred to as saleable reserves).

All reserves, by definition, include mining losses and dilution, and the use of superfluous description is discouraged. In situ coal is, also by definition, limited to Coal Resources. For Coal Resources that are reported on an in situ basis, the Competent Person should comment on the expected dilution and mining recovery that would occur during operations and the amount expected to be recovered following beneficiation. As for all minerals, Coal Resources should pass the test for reasonable prospects for eventual economic extraction, with special consideration to geographical access and likelihood of obtaining permits.

Code

A4-4 The terms 'Mineral Resource' and 'Mineral Reserves' as well as the above defined sub-sections are valid for coal reporting, but if the Competent Person wishes to do so, the terms 'Coal Resource (Resources)' and 'Coal Reserve (Reserves)' can be replaced by suitable sub-sections.

A4-5 Marketable Product (or Saleable Coal Reserves), representing the product that is beneficiated or processed otherwise, can be made public. When this is the case, the equivalent Probable and/or Proved Coal Reserves should be indicated.

A4-6 The basis of the estimated revenue expected from the saleable product should be provided.

A4-7 Reference to all coal products and properties must not be made until specific properties are demonstrated by analytical results for samples from the deposit.

Code	A4-8	Relevant coal quality information must be reported for all Coal Resource and Coal Reserve categories on which quality parameters are based. Where applicable, Saleable Coal Reserves need to be subdivided into the relevant coal product types.
Guidance		*Reference to the terms 'coking coal' or 'metallurgical coal', or any reference to coking properties, should not be made until specific coking properties are demonstrated by analytical results for samples from a deposit.* *Parameters used to measure coal quality, should be reported on the basis of, for instance, 'As Received (in situ)' or 'Air Dried' moisture. The quality of the coal should be indicated in accordance with the parameters related to specific applications: steam coal (thermal coal), metallurgical coal (coking coal) etc. The selection of the relevant quality parameters is the responsibility of the Competent Person and may include ash, volatile matter, sulphur, coking properties, calorific value etc. and also must include bulk density as it is one of the most important parameters.* *Resource classification should take into consideration both continuity and reliability of thickness measurements, and continuity, reliability and confidence in quality parameters, recognising that variability in seam thickness and quality are not necessarily interdependent. Continuity of seams, partings and their termination by dykes, faults and channels or areas where spontaneous combustion has occurred should be considered both horizontally and vertically, with attention paid to the ability of the likely mining method to cope with discontinuities and displacements.*
Code	A4-9	Due to the effects on planning for land use, the administrative management (ETKB, TKİ, TTK, EÜAŞ and others) may need to have inventory coal estimations that are not limited by short- and mid-term economic issues. The UMREK Code does not govern these estimates.

TABLE 1 – SECTION 10			Exploration Results	Mineral Resources	Mineral Reserves
Section 10: Reporting for Coal Resources and Coal Reserves					
10.1	Specific Reporting for Coal	(i)	Appendix4 of the Code provides additional criteria for reporting on coal deposits.		
10.2	Geological Setting, Deposit, Mineralisation	(i)	The project geology including coal deposit type, geological setting and coal seams/zones present.		
		(ii)	The structural complexity, physical continuity, coal rank, qualitative and quantitative properties of the significant coal seams or zones on the property.		
10.3	Drilling Techniques	(i)	Core recoveries and method of calculation. Core recoveries in cored bore holes should be in excess of 95% by length within the coal seam intersection.		
10.4	Relative Density to replace Bulk Density	(i)	The apparent relative density or true relative density of the coal seam(s) determined on coal samples from bore hole cores using recognized standard laboratory methods or commonly used procedures. The moisture basis on which the relative density determination is based and the moisture basis on which the final density value is reported (insitu or air-dried basis), should be stated.		
10.5	Bulk-Sampling and/or trial-mining	(i)	The purpose or aim of the bulk sampling programme, the size of samples, spacing/density of samples recovered. The applicability of bulk sampling or large diameter core samples to provide representative samples for tests. Comparison of results obtained from bulk sampling versus exploration sampling.		
10.6	Reasonable prospects for eventual economic extraction	(i)	The basis on which reasonable prospects for eventual economic extraction has been determined. Any material assumptions made in determining the 'reasonable prospects for eventual economic extraction'.		
10.7	Coal Resource and Reserve Reporting	(i)		The appropriate coal quality for all Coal Resource and Reserve categories. The type of analysis (e.g., raw coal, washed coal at a specific cut-point density) and the basis of reporting of the coal quality parameters (e.g., air-dried basis, dry basis, etc.).	
		(ii)		A Coal Resource only includes the coal seam(s) above the minimum thickness cut-off and the coal quality cut-off(s).	The Reserves may be reported as ROM tonnages and coal quality, and also as Saleable product/s tonnages and coal quality.
		(iii)		The reporting basis with particular reference to moisture and relative density.	

APPENDIX 5 – REPORTING OF DIAMOND AND OTHER GEMSTONE EXPLORATION RESULTS, MINERAL RESOURCES AND MINERAL RESERVES

Code

A5-1 The Articles in this appendix address matters that relate specifically to the public reporting of Exploration Results, Mineral Resources and Mineral Reserves for diamonds and other gemstones.

A5-2 Unless specified otherwise, Articles 1 to 13 of the Code (including Figure 1) apply.

A5-3 Table 1, as part of the Code, should be considered persuasive when reporting Exploration Results, Mineral Resources and Mineral Reserves for diamonds and other gemstones.

Guidance

For the purposes of Public Reporting, the requirements for diamonds and other gemstones are generally similar to those for other commodities with the replacement of terms such as 'mineral' by 'diamond' and 'grade' by 'grade and average diamond price (value)'. The term 'quality' should not be substituted for 'grade', since in diamond deposits these have distinctly separate meanings. Other industry guidelines (Precious Metals and Precious Stones Market, Ministry of Development Mining Specialised Commission Reports etc.) on the estimation and reporting of diamond resources and reserves may be useful but will not under any circumstances override the provisions and intentions of the UMREK Code.

A number of characteristics of diamond deposits are different from those of, for example, typical metalliferous and coal deposits and therefore require special consideration. These include the generally low mineral content and variability of primary and placer deposits, the particulate nature of diamonds, the specialised requirement for diamond valuation and the inherent difficulties and uncertainties in the estimation of diamond Resources and Reserves.

Code

A5-4 Reports of diamonds recovered from sampling programmes must provide material information relating to the basis on which the sample is taken, the method of recovery and the recovery of the diamonds.

A5-5 The weight of diamonds recovered may only be omitted from the report when the diamonds are considered to be too small to be of commercial significance. This lower cut-off size should be stated.

Guidance		*The stone size distribution and price of diamonds and other gemstones are critical components of the Resource and Reserve estimates. At an early exploration stage, sampling and delineation drilling will not usually provide this information, which relies on large- diameter drilling and, in particular, bulk sampling.* *In order to demonstrate that a Resource has reasonable prospects for eventual economic extraction, some description of the likely stone-size distribution and price is necessary, however preliminary the analysis of these may be. To determine an Inferred Mineral Resource in simple, single-facies or single-phase deposits, such information may be obtainable by representative large-diameter drilling. More often, some form of bulk sampling, such as pitting and trenching, or sometimes underground development, would be employed to provide larger sample parcels.* *In order to progress to an Indicated Mineral Resource, and from there to a Probable Mineral Reserve, it is likely that much more extensive bulk sampling would be needed to fully determine the stone-size distribution and value. Commonly such bulk samples would be obtained by underground development or in some cases a comprehensive large diameter drilling program designed to obtain sufficient diamonds to enable a confident estimate of price.* *In complex deposits, it may be very difficult to ensure that the bulk samples taken are truly representative of the whole deposit. The lack of direct bulk sampling, and the uncertainty in demonstrating spatial continuity of size and price relationships should be persuasive in determining the appropriate resource category.*
Code	A5-6	Where Diamond Resource or Diamond Reserve grades (carats per tonne) are based on correlations between the frequency of occurrence of micro-diamonds and of commercial size stones, this must be stated, the reliability of the procedure must be explained, and the cut-off sieve size for micro-diamonds reported.
	A5-7	Where sample results (size-frequency distributions for types of stones) have been adjusted or prices adjusted to produce a 'model' different from the actual distribution and value of a bulk sample, a comparison must be made of the actual and model size-frequency distributions and prices.
	A5-8	For Public Reports dealing with diamond or other gemstone mineralisation, it is a requirement that any reported valuation of a parcel of diamonds or gemstones be accompanied by a statement verifying the independence of the valuation.
	A5-9	The valuation must be based on a report from a demonstrably reputable and qualified expert.
	A5-10	If a valuation of a parcel of diamonds is reported, the weight in carats and the lower cut-off size of the contained diamonds must be stated, and the value of the diamonds must be given in US Dollars and Turkish liras (TL) per carat.
	A5-11	Where the valuation is used in the estimation of Diamond Resources or Diamond Reserves, the valuation must be based on a parcel representative of the size, shape and colour distributions of the diamond population in the deposit.
	A5-12	Diamond valuations should not be reported for samples of diamonds processed using total liberation methods.

TABLE 1 – SECTION 11		Exploration Results	Mineral Resources	Mineral Reserves
Section 11: Reporting of Diamonds and Gemstones				
11.1	**Specific Reporting for Diamonds and Gemstones**	(i)	Criteria applicable to diamond deposits are also applicable to other gemstone deposits.	
		(ii)	Appendix 5 provides additional criteria for reporting on diamonds and other gemstones.	
11.2	**Geological Setting, Deposit, Mineralisation**	(i)	The nature of the source of the diamonds, including the rock type and geological environment.	
11.3	**Sampling of Diamond Projects**	(i)	The type of sample (outcrop, boulder, drill-core, RC drill cuttings, gravel, stream sediment or soil) and purpose (for example: RC drilling to identify gravel thickness, large-diameter drilling to establish stones per unit of volume, bulk-sample, etc.).	
		(ii)	Sample size, distribution and representivity.	
		(iii)	The type of sample facility, treatment rate and accreditation.	
		(iv)	Sample size reduction, bottom and top screen sizes and any re-crush.	
		(v)	The sample processes (e.g., DMS, grease, X-Ray, hand-sorting, etc.).	
		(vi)	Process efficiency, tailings auditing and granulometry.	
		(vii)	The laboratory used, type of process for micro-diamonds and accreditation. Reports of microdiamond recoveries should specify both the number of stones recovered and the top and bottom screen or crushing sizes used in the recovery process.	
		(viii)	Reports of kimberlitic indicator minerals (KIM's), such as chemically/physically distinctive garnet, ilmenite, chrome spinel and chrome diopside, should be prepared by a suitably qualified laboratory which should be identified.	
		(ix)	Reports of recoveries of diamonds or KIM's from all samples accompanied by details of the sampling parameters used – type of sample (stream sediment, soil, bulk, rock, etc.) as well as sample size, sample frequency, representivity and screen parameters are required.	
		(x)	Relevance of major and trace element chemistry of any kimberlitic indicator minerals recovered. Relevant peer-reviewed published research articles referenced when reporting the interpretation of mineral chemistry data for diamond exploration projects. NOTE: Mineral chemistry does not provide direct grade or diamond value information, and may not be used to infer these parameters for Mineral Resource estimation purposes.	
		(xi)	Where diamonds have been recovered, details of the form, shape, colour and size of the diamonds and, where relevant, the nature of the source of the diamonds.	
11.4	**Bulk Sampling and/or trial-mining**	(i)	Relevant tabulated results, including (but not limited to) volume of sample, number of individual diamonds, total number of carats, sample grade, diamond value (it is not possible to evaluate diamond quality from microdiamonds).	
		(ii)	Micro and macro diamond sample results per geological domain.	
		(iii)	Stone-size and stone-number distribution.	
		(iv)	The lower cut-off size should be stated.	
		(v)	A carat (diamond) is defined as one fifth of a gram (0.2 g) – often described as a metric carat. Any deviation from this standard should be explained in detail. Sample grade is used in the context of carats per units of mass, area or volume. The sample grade above the specified lower cut-off sieve size should be reported as carats per dry metric tonne and/or carats per 100 dry metric tonnes. For placer deposits, sample grades quoted in carats per tonne or carats per m^3 are acceptable. In the marine placer environment Diamond Reserve grades are, typically, reconciled on a per m^2 basis.	

TABLE 1 – SECTION 11			Exploration Results	Mineral Resources	Mineral Reserves
Section 11: Reporting of Diamonds and Gemstones (continued)					
11.5	**Estimation and Modelling Techniques**	(i)	Estimation techniques (including geostatistical estimation, where relevant) used to determine the volume/tonnage, grade and value data applicable to the deposit type.		
		(ii)	Applicable volumes, grades and values expressed in ranges (with appropriate clarifiers to denote lack of reliability of data).		
		(iii)	If grades are reported then it should be stated clearly whether these are regional averages, based on microdiamond assessment, KIM analyses, or if they are selected individual samples taken from the property under discussion.	The basis for grade estimation for Diamond Resources should be from bulk-sampling or large diameter drilling (or extrapolated from microdiamond data) derived from the property itself.	The basis for grade estimation for Diamond Reserves should be from bulk-sampling and/or trial-mining.
		(iv)	If grades are reported then it should be stated clearly whether these are regional averages or if they are selected individual samples taken from the property under discussion.		
		(v)	The occurrence of individual diamonds or microdiamonds in surficial deposits or from inadequate samples (too small to be statistically valid) from a primary or secondary rock source would not typically qualify as an exploration target. This may not be true for marine deposits, in which case further explanation and discussion would be necessary.		
		(vi)	Volume, grade and value estimation (including geostatistical, where relevant) and interpolation techniques applied and their applicability to the deposit type.		
		(vii)	Reports of diamond properties should specify the number and total weight (in carats) of diamonds recovered. The weight of diamonds recovered may only be omitted from the report when the diamonds are less than 0.5 mm in size (i.e. when the diamonds recovered are microdiamonds).		
11.6	**Resource/ Reserve Classification Criteria**	(i)		A Diamond Resource / Reserve should not be reported in terms of contained diamond content unless corresponding tonnages / volumes, grades and values are also reported. The average diamond grade and value should not be reported without specifying the applicable Bottom Cut-off Screen Size.	
		(ii)		In addition to general requirements to assess volume and density there may be a need to relate stone frequency (stones per cubic metre, per tonne, or per square metre) to stone size (carats per stone) to derive grade (carats per cubic metre, per tonne or per square metre). The elements of uncertainty in these estimates should be considered, and Diamond Resource classification developed accordingly.	
		(iii)		Present aspects of: -micro and macro diamond sample results per domain; - global sample grade per geological domain and local block estimates in the case of Indicated Resources; - spatial structure analysis and grade distribution; - stone size and number distribution, and - effect on sample grade with change in bottom cut off screen size.	
		(iv)		<u>Sample grade</u> - the sample grade above the specified lower cut-off sieve size as carats per dry metric tonne and/or carats per 100 dry metric tonnes; - for alluvial deposits, sample grades quoted in carats per (100) square metre or carats per (100) cubic metre are acceptable be accompanied by a volume to weight basis for calculation, where relevant; - adjustments made to size distribution for sample plant performance and performance on a commercial scale; - the total number of diamonds and the total weight of diamonds greater than the specified and reported bottom cut-off sieve size; - the weight of diamonds may only be omitted when the diamonds are considered too small to be of commercial significance, and - this lower cut-off size should be stated.	

TABLE 1 – SECTION 11			Exploration Results	Mineral Resources	Mineral Reserves
Section 11: Reporting of Diamonds and Gemstones (continued)					
11.6 ***(continued)***	**Resource/ Reserve Classification Criteria** ***(continued)***	(v)		Value - diamond valuation is a highly specialized process and is only possible on parcels containing appropriate numbers of macro-diamonds; - it is not possible to evaluate diamond quality from microdiamonds; - Classification of diamonds as, for example, gem, or near gem and industrial, should be made by recognized experts. - valuations should not be reported for samples of diamonds processed using total liberation method, which is commonly used for processing kimberlite exploration samples; - the number of stones and the total number of carats used in the grade and value estimation should be disclosed and accompanied by a discussion of the validity of this data; - the accreditation of the Valuer should be disclosed. Valuations of partial parcels of diamonds should not be used as a basis for the estimation of average revenue from a diamond deposit; - details of parcel valued, number of stones, carats and size distribution using a standard progression of sieve sizes for each identified geological domain; - average valuation per sieve size; - estimation of value with size; - assessment of diamond breakage; - average USD or TL/carat and/or USD or TL /tonne value with change in bottom cut-off; - minimum parcel size for representative valuation; - has a strict bottom cut-off been applied, or does the modelled value include incidental diamonds below the bottom cut-off, and - the basis for the price (e.g., dealer buying price, dealer selling price, etc.) should also be stated.	
11.7	**Security and integrity of sampling**	(i)	Whether samples were sealed after excavation and the chain of custody from source to reporting of results.		
		(ii)	Security standards in sampling plant and recovery sections of bulk-sampling/trial-mining programmes for macro diamonds.		
		(iii)	Valuer location, escort, delivery, cleaning losses, reconciliation with recorded sample carats and number of stones.		
		(iv)	Core samples washed prior to treatment for micro-diamonds and use of diamond drill-bits.		
		(v)	Audit samples treated at alternative facilities.		
		(vi)	Results of tailings checks.		
		(vii)	Recovery of tracer monitors used in sampling and treatment.		
		(viii)	Geophysical (logged) density and particle density.		
		(ix)	Cross-validation of sample weights, wet and dry, with hole volume and density, moisture factor.		

APPENDIX 6 – REPORTING OF EXPLORATION RESULTS, MINERAL RESOURCES AND MINERAL RESERVES FOR INDUSTRIAL MINERALS, CEMENT FEED MATERIALS AND CONSTRUCTION RAW MATERIALS (AGGREGATES)

Code

A6-1 Industrial minerals, cement feed materials and construction raw materials (aggregates) are covered by the UMREK Code in case of preparation of Public Reports.

Guidance

Industrial minerals within the context of the UMREK Code are listed as follows:

Gypsum, alum, andalusite, apatite, barium salts (barite, viterite), bentonite (Smectite group minerals, the primary mineral of which is montmorillonite), boron salts (colemanite, ulexite, borasite, tincal, pandermite or other boron minerals containing at least % 10 B_2O_3 in its composition), bromine salts, chert, diatomite, disten, feldspar group minerals, fluorite, phosphate, glaconite graphite, rock salt, hydromagnesite, huntite, illite (more than % 50 illite mineral), iodine, kaolin group minerals, chlorite, cryolite, quartz, quartzite and quartz sand containing at least % 80 SiO_2 in its composition, sulfur, leonardite, lithium, magnesite, mica minerals, olivine (dunite, serpentinite), paligorskite, tarstone, perlite, pyrophyllite, pumice, potassium salts, radiolarite, refractory clays, sepiolite, silex, sillimanite, sodium, strontium salts, natural soda minerals (trona, nacolite, davsonite), talc, tenardite, peat, vermiculite, wollastonite, zeolite (more than % 50 zeolite mineral), emery stone etc.

Cement Feed Materials and Construction Raw Materials (Aggregates): Products used in integrated cement, lime and calcite grinding, power plant and metal production facilities, the construction raw materials used in the production of ready mixed concrete, mortar and hot mix asphalt, building materials and protection layer stones (armour stones), railway ballasts, the construction raw materials (aggregates) used in the construction of road, dam, tunnel etc.

Code

A6-2 Articles in this Appendix address matters that relate to the Public Reporting of industrial minerals, cement feed materials and construction raw materials (aggregates) of all forms that are generally sold on the basis of their product specifications and market acceptance.

A6-3 Unless specified otherwise, Articles 1 to 13 of the Code (including Figure 1) apply.

A6-4 Table 1, as part of the Code, should be considered persuasive when reporting Exploration Results, Mineral Resources and Mineral Reserves for industrial minerals, cement feed materials and construction raw materials (aggregates).

Guidance		*"Industrial minerals, cement feed materials and construction raw materials (aggregates)" is a technical/ commercial term covering all natural materials that are reduced to different sizes in crushing-screening/grinding plants by excavating from their natural environment and/or going through drilling-blasting process, and have the desired properties for their usage in the relevant sectors.* *Construction raw materials (aggregates) are also used in load carrying, filling and public works in addition to being used as a raw material in the production of cement, concrete etc.* *For a resource (rock, sand-gravel, clay) to be produced as an industrial mineral, cement feed material and construction raw material (aggregate), it must principally comply with the current standards in the target market. It is important that the chemical and petrographic properties, mineralogical compositions of these resources are suitable for quality, continuity (in case of rocks; chemical, mineralogical and petrographic composition and texture, the effect of structural elements on rock quality, organic matter and shell content, weathering types and products, hazardous material content, components causing harmful reactions etc.; in case of sand-gravel and clays; chemical and mineralogical composition, organic matter and shell content, weathering types and products, hazardous material content, components causing harmful reactions etc.) and usage in the target market.*
Code	A6-5	When reporting information and estimates for industrial minerals, cement feed materials and construction raw materials (aggregates), all of the key principles and purpose of the Code apply.
Guidance		*When determining Mineral Resource and Mineral Reserves for industrial minerals, cement feed materials and construction raw materials (aggregates), unlike other minerals, reporting should be made by taking the rock type as a basis. Type of rock (rock, gravel-sand, clay etc.) is determined by performing petrographic analysis. With the results of this analysis, the type of the rock and the existence of foreign material will be known.*
Code	A6-6	Chemical analyses made during exploration and survey stage may not always be relevant for material evaluation, and other quality/performance characteristics and quality continuity may be more applicable and acceptable as a basis of reporting.
Guidance		*Where necessary, chemical analysis is used to verify the presence of possible minerals and related alteration that could produce important quality defects on final products.* *Chemical, mineralogical, petrographic analysis may also identify mineral components and/or assemblages and is used to predict the future technical requirements of the quarrying-processing equipment and related tools.* *Within the scope of reporting, in exploration after detailed geological surveys, core drilling (vertical and/or inclined) and where necessary geophysical methods apply.* *In Mineral Resource and Mineral Reserve reporting, all industrial minerals, cement feed materials and construction raw materials (aggregates) explored in the field need to be identified (stratigraphic analyses by considering market probabilities and describing the geological unit planned for production). Resource estimation (containing data acquired from drilling and/or geophysics through geological prospecting, outcrop sampling, cross sections*

Guidance		*and/or three-dimensional resource model) and the reserve should be identified by defining the following Attenuation Factors and the report should be included these factors.* *WF (Weathering Factor, %): The estimated volume percentage that cannot be produced due to weathering zones that adversely affect the production, the quality and quality continuity.* *KF (Karstic Factor, %): The estimated volume percentage of karstic openings in soluble rocks (to be produced through field analyses and drill core logs and where necessary geophysical methods)* *QF (Quality Factor, %): volume percentage that does not meet the quality traits (such as colour, pattern, crystal grain size, texture, faults and defects etc. and the in-field distribution of colour-pattern-crystal grain size) expected by the market from the material planned to be produced (in cases where possible, the quality distribution in the field must be indicated on the geological map and cross sections and/or three dimensional resource model).* *MF (Mining Factor, %): % of volume that cannot be produced due to mining design and planning at the targeted vein (the volume fraction of the resource quantity that will be left unproduced and is not producible in economic terms due to the final slope design shaped by the pit type)* *From the resource quantity to be identified in the reporting, reserve quantities determined by also considering the above specified Attenuation Factors must be identified.*
Code	A6-7	Some industrial mineral, cement feed materials and construction raw material (aggregate) deposits may be capable of yielding products suitable for more than one application and/or specification. If considered material by the Competent Person, such multiple products should be quantified either separately or as a percentage of the bulk of the deposit.
Guidance		*Specific characteristics of industrial minerals and cement feed materials such as colour, chemical, mineralogical and petrographic composition, grain size etc. and specific characteristics of construction raw materials (aggregates) such as chemical, mineralogical and petrographic composition and properties, physical, strength and durability properties (grain size distribution, grain shape, resistance to fragmentation and abrasion, resistance to freeze and thaw, hazardous material content, etc.) and the change of these can be considered more important for the market and more applicable and acceptable as a basis of reporting.* *It should be investigated and reported whether the natural material intended to be used as industrial mineral, cement feed material and construction raw material has quality continuity (changes in composition and properties) in extensive areas. In addition, two- and/or three-dimensional geological maps and cross sections and three-dimensional resource model must be added to the report to indicate the quality change.*
Code	A6-8	Unless it is a specific aspect of their instructions to reflect the range of product mixes and target markets for the deposit, the Competent Person should normally report the reserves within the framework of an existing mining plan or established set of product and market assumptions and objectives.

Guidance		*Quantity and saleable commercial block product characteristics (petrographic, mineralogical and chemical composition, grain size, shape, physical and mechanical properties, etc.) are estimated with confidence to allow the application of Attenuation Factors to support mine planning and evaluation of the economic viability of the deposit for a resource of industrial minerals, cement feed materials and construction raw materials (aggregates).* *Geological evidence is derived from detailed and reliable exploration, sampling and testing and is sufficient to confirm quality continuity between points of observation.*
Code	A6-9	If there is potential for ancillary products, or mining or process waste, to be sold off-site for subsidiary uses in addition to the planned sales of primary products (i.e., other uses for non-saleable quarry production, such as secondary aggregate or engineering or other fill), the Competent Person should reflect this in their report and comment on any significant implications (e.g., reductions in the amount of non-saleable material that could otherwise be used as a restoration material).
Guidance		*Many industrial mineral, cement feed materials and construction raw material (aggregate) deposits may be capable of yielding different products (different materials and/or different market grades within the same material), suitable for the production of more than one finished or semi-finished product, and for more than one final application and/or specification. They often are sold in the market with different prices.*
Code	A6-10	The factors underpinning the estimation of Mineral Resources and Mineral Reserves for industrial minerals, cement feed materials and construction raw materials (aggregates) are the same as those for other deposit types covered by the Code. It may be necessary, prior to the reporting of a Mineral Resource or Mineral Reserve, to take particular account of certain key characteristics or qualities such as likely product specifications, proximity to markets and general product marketability.
	A6-11	For industrial minerals, cement feed materials and construction raw materials (aggregates), it is common practice to report the saleable (or useable) product rather than the 'as mined' product as it is recognised that commercial sensitivities may not permit the publication of Mineral Resources and Reserves in the latter format which is the preferred style of reporting within the Code.
	A6-12	It is important that, in all situations where the saleable or usable product is reported, a clarifying statement is included to ensure that the reader is fully informed as to what is being reported. Other industry guidelines on the estimation and reporting of cement feed materials and construction raw materials (aggregates) Resources and Reserves may be useful but will under no circumstances override the provisions and intention of this Code for public reporting. In cases where there are different applications, necessary explanations can be reported on an 'if not, why not' basis by adhering to Table 1.
Guidance		*It may be necessary, prior to the reporting of Mineral Resources and Mineral Reserves, to take account of certain particular key characteristics/features of the target material specific to industrial minerals, cement feed materials and construction raw materials (aggregates). These may include final product specifications and demand of the market.* *These may also depend mainly on the market quality of the target material (colour, grain, texture and chemical composition etc.). A correct professional evaluation of the market quality, made by the Competent Person in different ways, is the key to evaluating the final product marketability and is a key Modifying Factor in definition of Mineral Reserves for materials.*

Guidance		*The Competent Person should explain in detail in the report, the method utilised for the market quality evaluation of the target materials, and in case of the market the references cited, together with documents referenced or used.* *Sometimes, otherwise non-saleable materials are sent off-site as mining waste or as other materials of potential economic value.* *Care should be taken to ensure that such materials are not 'double-counted' by being included as Mineral Resources and Mineral Reserves at both the site of production and at the site of reception where they are considered as useable products (with or without further processing to make them marketable).*
Code	A6-13	Reports should make clear the 'permitted' or 'non-permitted' status of the resources and reserves, and, in addition, reserves particularly should only be quoted where the operator has legal control.
Guidance		*It should be noted that many of the Modifying Factors are more relevant to industrial minerals, cement feed materials and construction raw materials (aggregates) than to metalliferous minerals. Specifically, the legal control may be more important, as well as the permitting status, due to the local nature of the planning process.*
Code	A6-14	Mineral Reserves and Mineral Resources of industrial minerals, cement feed materials and construction raw materials (aggregates) serving localised or regional markets may be reported on an aggregated basis on an appropriately defined geographical basis to reflect the particular economic constraints of the deposits being reported without divulging commercially sensitive information.
	A6-15	In certain cases, commercial sensitivity may prevent the publication of detailed information and data associated with Mineral Resources and Mineral Reserves of industrial minerals, cement feed materials and construction raw materials (aggregates), and in such cases, this should be clearly justified in the report (either prepared for an individual site or on an aggregated basis).

TABLE 1 – SECTION 12			Exploration Results	Mineral Resources	Mineral Reserves
Section 12: Reporting of Industrial Minerals, Cement Feed Materials and Construction Raw Materials (Aggregates)					
12.1	**Specific Reporting of Industrial Minerals, Cement Feed Materials and Construction Raw Materials (Aggregates)**	(i)	Appendix 6 provides additional criteria for reporting on Industrial Mineral, Cement Feed Materials and Construction Raw Materials (Aggregates) deposits.		
		(ii)	The exploration or geologically specific specialised industry techniques appropriate to the minerals under investigation.		
		(iii)	The nature and quality of sampling or specific specialised industry standard measurement tools appropriate to the minerals under investigation.		
		(iv)	Appropriate saleable product qualities. The basis for reporting (physical or chemical parameters, air-dried basis, dry basis, etc.). Deleterious chemical elements or physical parameters.		
		(v)	Assumptions regarding in particular: extraction methods, infrastructure, processing, environmental and social parameters. Where no mining related assumptions have been made, this should be explained.		
		(vi)	Marketing parameters, customer specifications, testing, and acceptance requirements.		
		(vii)	The nature, amount and representativeness of metallurgical/processing studies completed which form the basis for the various saleable materials which may be priced for different chemical and physical characteristics.		
		(viii)	Where the reference point is a saleable product, a clarifying statement is included to ensure that the reader is fully informed as to what is being reported.		

APPENDIX 7 – REPORTING OF EXPLORATION RESULTS, MINERAL RESOURCES AND MINERAL RESERVES FOR DIMENSION STONE, ORNAMENTAL AND DECORATIVE STONE

Code

A7-1 Dimension stone, ornamental and decorative stone are covered by the UMREK Code in case of preparation of Public Reports.

A7-2 Articles in this Appendix address matters that relate to the public reporting of dimension stone produced as block such as marble, travertine, granite, basalt etc. and ornamental and decorative stone of all forms that are generally sold on the basis of their technical (geological/mining) product specifications, quality and market acceptance.

A7-3 Unless specified otherwise, Articles 1 to 13 of the Code (including Figure 1) apply.

A7-4 Table 1, as part of the Code, should be considered persuasive when reporting Exploration Results, Mineral Resources and Mineral Reserves for dimension stone, ornamental and decorative stone.

Guidance

'Dimension stone' is a technical/commercial term that includes all natural stones that can be quarried in blocks of different dimensions and processed by cutting or splitting, and that possess the technical and aesthetic properties required for their use in the building and construction industries.

In both mining methods and fields of application, dimension stone is distinct from any other material derived from natural rocks (such as: aggregates, cement materials, crushed stone, etc. see Appendix 6) Whilst other materials are almost exclusively used for load bearing and filling functions and are largely utilised in public works, dimension stone materials offer special qualitative features which mean they can be used for different purposes and they can perform both structural and decorative architectural functions.

In general, dimension stones can be quarried in regular and/or unshaped blocks by using different mining methods (drilling & splitting, diamond wire and diamond chain-saw cutting) and processing techniques (cut, polished, and subjected to other surface treatments) to produce semi-finished products (slabs) and finished products (tiles and cut-to-size products).

For a rock to become dimension stone planned to be produced as a structure and facing stone for decorative purposes, it has to be suitable for block production and cutting into slabs. In terms of block production, two main traits need to be present. One of those traits is the ability of the field to provide commercial-sized blocks in desired dimensions with the desired economic production efficiency, while the other is for this block to be suitable for cutting into slabs in different shapes. However, for some dimension stones such as onyx marble, which is rare and has commercial value, the situation is different. As such stones are used for handcrafts and ornaments, they are assessed in kilograms, because they have small block dimension and volumes.

Code

A7-5 When determining Mineral Resource and Mineral Reserves for dimension stones, unlike other minerals, reporting should be made by taking the rock type as a basis. Type of rock is determined by performing petrographic analysis. With the results of this analysis, the type of the rock and the existence of foreign materials inside it will be known.

A7-6 Chemical analyses may not always be relevant for material evaluation, at least during the exploration-evaluation phases. Where necessary, chemical analysis is used to verify the presence of possible minerals and related alteration that could produce important quality defects on finished products.

Guidance

Within the scope of reporting, in dimension stone exploration after detailed geological surveys, core drilling (vertical and/or inclined) and where necessary geophysical methods apply.

In Mineral Resource and Mineral Reserve reporting, all resources explored in the field need to be identified (stratigraphic analyses by considering market probabilities and describing the geological unit planned for production). Resource estimation (containing data acquired from drilling and/or geophysics through geological prospecting, outcrop sampling, section works), and the reserve should be identified by defining the following Attenuation Factors and the report should be included these factors.

DAF (Discontinuity Opening Factor, %): Volumetric percentage of target rock that does not exist due to openings/cavities developed by the opening of joints, voids and caves in the rock. These openings do not develop by direct karstification.

KF (Karstic Factor, %): The estimated volume percentage of karstic openings in soluble rocks (to be produced through field analyses and drill core logs and where necessary geophysical methods).

ME (Mineral Impact Factor, %): Distribution of minerals that adversely affect the processing of the rock.

WF (Weathering Factor, %): weathered rock volume percentage in % (to be produced through field analyses and drill core logs and where necessary geophysical methods).

MF (Mining Factor, %): % of volume that cannot be produced due to mining design and planning at the targeted vein (the volume fraction of the resource quantity that will be left unproduced and is not producible in economic terms due to the final slope design shaped by the pit type).

QF (Quality Factor, %): volume percentage that does not meet the quality traits (such as colour, pattern, crystal grain size, texture, faults and defects etc. and the in-field distribution of colour-pattern-crystal grain size) expected by the market from the dimension stone planned to be produced (in cases where possible, the quality distribution in the field must be indicated on the geological map and cross sections and/or three dimensional resource model).

JF (Joint Factor, %): % of the joints per unit volume regarding the dimension stone reserve planned to be extracted (Jv) and extractable mercantile block volume estimated correspondingly (Vb) and % of the reserve per unit volume that cannot be extracted based on the block recovery ratio.

From the resource quantity to be identified in the reporting, reserve quantities determined by also considering the above specified Attenuation Factors must be identified.

Code	A7-7	Chemical/compositional analysis may also identify mineral components and/or assemblages and is used to predict the future technical requirements of the quarrying-processing equipment and related tools.
	A7-8	Qualitative and aesthetic qualities (colour, grain, texture and their regularity in distribution) and/or their structural performance characteristics (compression and flexural strength, abrasion resistance, porosity, water absorption, ability to be polished, radioactivity content etc.) may be more important for the market and applicable and acceptable as the basis of the reporting.
Guidance		*In dimension stone products, colour-texture homogeneity bears a great importance. Defects observed in colour and texture particularly in slabs for export bear great importance in pricing and may cause great differences in product prices.* *In limestone and crystalline marbles, there are defects and faults such as oxidation-related thin veins in different colours, foliation planes that can cause anisotropy, cracks and joints, fractures, irregular calcite veins, dark-coloured limestone bands, areas with different grains sizes, colorations in different directions, small gaps and pores, different colour zones, dark-coloured marble bands, and in other-type dimension stones, enclaves in undesired size and distribution, quartz veins and tiny cracks diagonally cutting blocks and/or slabs in production, aplite and pegmatite veins, colour and texture changes and these have an effect on the price of the product. The rock planned to be extracted for sale need to be examined and reported to see whether it has colour, texture and quality homogeneity in large areas. In addition, two- and/or three-dimensional geological maps and cross sections and/or three-dimensional resource model must be added to the report to indicate the quality change.*
Code	A7-9	Many dimension stone deposits may be capable of yielding different products (different materials and/or different market grades within the same material) in terms of colour, pattern and properties, suitable for the production of more than one finished or semi-finished product, and for more than one final application and/or specification. They often are sold in the market with different prices.
Guidance		*For each type of rock sold to the market under different names, the rock properties (chemical, physical, mechanical and technological parameters) mentioned above that affect the processability of the rock and its performance in its final use should be reported.*
Code	A7-10	If considered material by the Competent Person, estimates for such multiple products should be included either separately or as percentages of the bulk of the deposit.
	A7-11	Unless it is a specific aspect of their instructions to reflect the range of products mixes and target markets for the deposit, the Competent Person should normally report the Mineral Resources and Mineral Reserves within the framework of an existing mining plan and/or Pre Feasibility/Feasibility Study or established set of products and market assumptions and objectives.

Guidance		*Quantity and saleable commercial block product characteristics (average block size, density, shape and physical and techno-mechanical properties) are estimated with confidence to allow the application of Attenuation Factors to support mine planning and evaluation of the economic viability of the deposit for a Dimension Stone (i.e. Marble) Mineral Resource.* *Geological evidence is derived from detailed and reliable exploration, sampling and testing and is sufficient to confirm geological properties and quality continuity between points of observation.*
Code	A7-12	If there is potential for ancillary products or by-products, or for quarrying or processing waste to be re-utilised or to be sold off-site for subsidiary uses, in addition to the planned sales of the primary products as described above (e.g., aggregate, sand and powder as industrial mineral, building and paving stone, etc.), the Competent Person should reflect this in the report and comment on any significant implications (e.g., reduction in the amount of non-saleable material, minimisation of waste and related lower waste management costs and environmental impact).
Guidance		*The factors underpinning the estimation of Mineral Resources and Mineral Reserves for dimension stones are often not the same as those for other deposit types covered by the Code.* *It may be necessary, prior to the reporting of Mineral Resources and Mineral Reserves, to take account of certain particular key characteristics/features of the target material specific to dimension stone.* *These may include final product specifications, proximity to markets, type, structure and demand of the market (very different area by area and, excluding some very well- established materials, possible changes in market requirements, and general product marketability.* *These may also depend mainly on the market quality of the target material (colour, grain, texture and their regularity in distribution). A correct professional evaluation of the Market Quality, made by the Competent Person in different ways, is the key to evaluating the final product marketability and is a key Modifying Factor in definition of Mineral Reserves for dimension stone.* *The Competent Person should explain in detail in the report, the method utilised for the Market Quality evaluation of the target dimension stones, and in case of the market the references cited, together with documents referenced or used.* *Sometimes, otherwise non-saleable materials are sent off-site as mining waste or as other materials of potential economic value.* *Care should be taken to ensure that such materials are not 'double-counted' by being included as Mineral Resources and Mineral Reserves at both the site of production and at the site of reception where they are considered as useable products (with or without further processing to make them marketable).*
Code	A7-13	In contrast with industrial minerals, cement feed materials and construction raw materials (Appendix 6), for which it is common practice to report the saleable (or useable) product rather than the 'as mined' product, for dimension stones production the raw block or 'as mined' product is usually reported in all its forms, shapes and dimensions. These are also factors that drive the market and the success of a dimension stone project.
	A7-14	The Public Report may contain either the geological or commercial names of target dimension stones. In any case an explanation of these terms should be included in the report.

Code	A7-15	Other industry guidelines on the estimation and reporting of dimension stones may be useful but will under no circumstances override the provisions and intention of this Code for public reporting.
	A7-16	Many of the Modifying Factors are more relevant and specific to dimension stones than to metalliferous minerals. In particular, the legal control of Mineral Resources and Mineral Reserves may be very important, as well the permitting or consenting status, due to the local nature and often simple structure of the planning process.
Guidance		*Reports should make clear the 'permitted' or 'non-permitted' status of the resources and reserves, and in addition reserves particularly should only be quoted where the operator has legal control.*
Code	A7-17	Mineral Reserves and Mineral Resources of dimension stone deposits with the same material and owned by the same company, potentially serving localised/domestic or regional markets, may be reported on an aggregated basis on an appropriately defined geographical basis to reflect the particular economic constraints of the deposits being reported without divulging commercially sensitive information.
	A7-18	In certain cases, commercial sensitivity may prevent the publication of detailed information and data associated with Mineral Resources and Mineral Reserves of dimension stone deposits, and in such cases, this should be clearly justified in the report (either prepared for an individual site or on an aggregated basis).

TABLE 1 – SECTION 13			Exploration Results	Mineral Resources	Mineral Reserves
Section 13: Reporting of Dimension Stone, Ornamental and Decorative Stone					
13.1	**Specific Reporting of Dimension Stone, Ornamental and Decorative Stone**	(i)	Appendix 7 provides additional criteria for reporting on Dimension Stone, Ornamental and Decorative Stone.		
		(ii)	The exploration or geologically specific specialised industry techniques appropriate to the stone under investigation.		
		(iii)	The nature and quality of sampling or specific specialised industry standard measurement tools appropriate to the stone under investigation.		
		(iv)	The appropriate saleable product qualities reported, including colour, grain, texture and their regularity in distribution. The basis for reporting (physical or chemical parameters, hardness, compression and flexural strength, abrasion resistance, density, porosity, water absorption, polishability etc.) should be reported. Reporting of deleterious chemical elements, radioactivity or physical parameters is required.		
		(v)	State assumptions regarding in particular extraction methods, infrastructure, processing, environmental and social parameters. Where no mining related assumptions have been made, this should be explained.		
		(vi)	Discuss and justify the marketing parameters, customer specifications, testing, and acceptance requirements.		
		(vii)	Discuss the nature, amount and representativeness of processing studies completed which form the basis for the various saleable materials which may be priced for different chemical and physical characteristics.		
		(viii)	Where the reference point is a saleable product, a clarifying statement is included to ensure that the reader is fully informed as to what is being reported.		

APPENDIX 8 – REPORTING OF THE EXPLORATION RESULTS, MINERAL RESOURCES AND MINERAL RESERVES FOR METALIC AND NON-METALLIC MINERALS EXTRACTED THROUGH SOLUTION MINING METHODS

Code

A8-1 The Articles in this appendix address matters that relate specifically to the public reporting of all minerals that have been dissolved in situ by water, steam or another solvent and extracted through a surface transfer method.

A8-2 Unless specified otherwise, Articles 1 to 13 of the Code (including Figure 1) apply.

A8-3 Table 1, as part of the Code, should be considered persuasive when reporting of all minerals that have been dissolved in situ by water, steam or another solvent and extracted through a surface transfer method.

A8-4 Information and estimates related to minerals extracted by solution mining must be reported in accordance with the fundamental principles and purposes of the Code.

A8-5 The Mineral Resources are expressed in the Code in terms of in situ rock quantities, and quality parameters, representing the proportion and quality of the economic mining product.

A8-6 If the Mineral Resources are being estimated during a stage after the production has started, the method and assumptions of such estimations must be indicated.

Guidance

As it is the case for all other minerals reported according to the Code, the Competent Person should report the Mineral Reserves and Mineral Resources within a framework of an existing production plan and a series of defined products, market assumptions and targets.

Generally, the extracted product for minerals extracted by solution mining (extracted product via solution mining method) would be the solid matter that remains after crystallization, removal or recycling of solvent (would be the remaining solid matter after crystallization or removal of the solvent). The quantity of the solvent itself should not be given as part of the resources or reserves.

It is important that an explanation statement related to saleable products is included in every report, to ensure the reader is fully informed about the reported product and about the steps needed to obtain this saleable product.

Other industrial application guidelines (e.g., hydrogeology) may be useful in estimating and reporting the Resources and Reserves of minerals extracted by solution mining.

Reports should indicate the 'permitted' or 'non-permitted' status of the resources and reserves. In addition, if the reserves are under legal inspection by the state, this must be indicated.

In some cases, the publication of detailed quality parameters may/can be avoided due to commercial sensitivity, but this must be clearly indicated in the report.

APPENDIX 9 – REPORTING OF EXPLORATION RESULTS, MINERAL RESOURCES AND MINERAL RESERVES FOR ASPHALTITES, OIL SHALES, OIL SANDS AND OTHER ENERGY MINERALS EXTRACTED THROUGH MINING METHODS

Code

A9-1 The Articles in this appendix address matters that relate specifically to the public reporting of asphaltites, oil shales and oil sands containing bitumen, petroleum and other hydrocarbons where solid material is processed to extract the hydrocarbons.

A9-2 Unless specified otherwise, Articles 1 to 13 of the Code (including Figure 1) apply.

A9-3 Table 1, as part of the Code, should be considered persuasive when reporting of asphaltites, oil shales and oil sands containing bitumen, petroleum and other hydrocarbons.

A9-4 When reporting the data and estimations of asphaltites, hydrocarbons sourced from oil shales and oil sands recovered by processing solid material, the basic principles and purpose of the Code are valid.

A9-5 Chemical analysis may not always be related to the estimation, and other quality and performance traits may be more applicable and acceptable as a basis of the reporting. Deposits of such material may permit producing products that are suitable for more than one application and/or specifications. The Competent Person must indicate such multiple products separately or as a percentage of the deposit volume.

Guidance

The Competent Person should normally report the Mineral Resources and Mineral Reserves within the framework of an existing mining plan or a series of specified products, market assumptions and targets. If there is an opportunity for ancillary products, mining or process waste to be used to recover by-products as an addition to the planned sales of primary products, then the Competent Person should reflect this in his report and make comment about significant implications (for instance, reduction in the quantity of a non-saleable product that can be used as a restoration material).

Factors assisting the estimation of Mineral Resources and Mineral Reserves of asphaltites, hydrocarbons from oil shale and oil sands sources, are the same as the other deposit types covered by the Code.

Prior to reporting a Mineral Resource or Mineral Reserve, it might be necessary to consider certain basic properties or qualities such as probable hydrocarbon product characteristics, proximity to markets and general product marketability.

Reporting the Exploration Results, Mineral Resources and Mineral Reserves for asphaltites, hydrocarbons sourced from oil shales and oil sands may require using other reporting standards and reporting according to securities market regulations that are different than those applicable for solid minerals. In such cases, other reporting standards have priority in general, and the selection of the proper reporting standard to be used is not dependent upon the decision of the Competent Person.

Guidance

Despite other industrial directives, reporting the Mineral Resources and Mineral Reserves of asphaltites, hydrocarbons from oil shales and oil sands sources may be useful if such materials are solid minerals covered by the UMREK Code. Therefore, other reporting standards do not invalidate the publicised declaration provisions and objectives of this Code.

In some cases, publishing of detailed quality parameters could be omitted due to commercial sensitivity, and this must be clearly indicated in the report.

APPENDIX 10 – RECOGNISED PROFESSIONAL ORGANISATIONS (RPOs)

This is a list of RPOs and required membership levels for the purpose of the definition of a Competent Person in the UMREK Code (Article 3.6).

To be recognised as an RPO, an organisation must satisfy the following criteria:

1) Be a self-regulatory organisation covering professionals in the mining and/or exploration industry;
2) Admit members primarily on the basis of their academic qualifications and professional experience;
3) Require compliance with the professional standards of competence and ethics established by the organisation anywhere in the world (not just within the home jurisdiction of the organisation); and
4) Have disciplinary powers, including the power to suspend or expel a member for breaches of professional standards of competence or ethics anywhere in the world.

The minimum membership classes required are consistent with those in other codes of CRIRSCO members and have been set at a level where the membership class is based on a system of peer scrutiny, including submission of documentation demonstrating experience and expertise and normally a professional interview, or where there is no interview UMREK would need to be satisfied that the system of peer scrutiny is sufficiently robust.

Organisations wishing to be considered as RPOs and added to the list below should write to the UMREK Secretariat with full justification and documentary evidence that they meet the criteria outlined above.

RPOs RECOGNISED BY UMREK, AND MEMBERSHIP LEVELS REQUIRED	
Organisation	**Minimum Membership Class Required**
YERMAM	Professional Member

APPENDIX 11 – MEANING OF THE TERMS AS ENGLISH-TURKISH

Exploration Results	Arama Sonuçları
Exploration Targets	Arama Hedefleri
Mineral Resources	Maden Kaynakları
Mineral Reserves	Maden Rezervleri
Inferred Mineral Resources	Mümkün Maden Kaynakları
Indicated Mineral Resources	Belirlenmiş Maden Kaynakları
Measured Mineral Resources	Ölçülmüş Maden Kaynakları
Probable Mineral Reserve	Muhtemel Maden Rezervi
Proved Mineral Reserve	Görünür Maden Rezervi
Modifying Factors	Dönüştürücü Faktörler

Adjacent Area	Mücavir Alan
Audit	Denetleme
Beneficiation	Zenginleştirme
Bulk Sample	Yığın Numunesi
Capital Cost Estimate	Yatırım Maliyet Tahmini
Coal Rank	Kömürleşme Derecesi
Commodity	Emtia
Competency Principle	Yetkinlik İlkesi
Competent Person	Yetkin Kişi
Compliance Statement	Uyumluluk Beyanı
Confidence Level	Güvenilirlik Düzeyi
Conflict of Interest	Çıkar Çatışması
Core Drilling	Karotlu Sondaj

Cost Factor	Maliyet Faktörü
Cut-off Grade	Eşik Tenör Değeri
Cut-off Sieve Size	Sınır Elek Göz Açıklığı
Delineation Drilling	Belirleme Sondajı
Deposit	Maden Yatağı
Dewatering	Susuzlaştırma
Dilution	Seyrelme
Dimension Stone, Ornamental and Decorative Stone	Doğal (Boyutlandırılabilir) Taş, Sanatsal ve Dekoratif Taş
Dump	Pasa
Estimation	Tahmin
Feasibility Studies	Fizibilite Çalışması
Gain Factor	Kazanç Faktörü
Grade	Tenör
Grade Capping	Tenör Ayıklama
Grease Recovery	Yağ Kazanımı
Hand Sorting	Elle Ayıklama (Triyaj)
Haul Road	Taşıma Yolu
High Nugget Vein Type Mineralization	Nabit Metal (veya Altın) içeren Damar Tipi Cevherleşme
In Ground	Yeraltında
In Situ	Yerinde
Infrastructure	Altyapı
Isolated Assay	Ayrık Analiz
Layout Plan	Vaziyet Planı
Leaching	Çözeltiye Alma/ Liç/ Özütleme
Life of Mine Plan (LoMP)	Maden Ömrü Üretim Planı

Massive Base Metal Deposits	Masif Baz Metal Yatakları
Materiality Principle	Kapsamlı Olma İlkesi
Metal Equivalents	Eşdeğer Tenör /Metal Eşdeğerliği
Metallurgical Coal (Coking Coal)	Metalürjik Kömür (Koklaşabilir Kömür)
Mineralised Fill	Cevherli Dolgu
Mineralization	Mineralizasyon/ Cevherleşme
Net Present Value (NPV)	Net Bugünkü Değer
Oil Sand	Petrollü Kum
Oil Shale	Bitümlü Şeyl
Operating Cost Estimate	İşletme Maliyet Tahmini
Outcrop Sampling	Mostra/ Yüzlek Numunelemesi
Panning	Bateleme
Pillar	Topuk
Pit Shell	Açık Ocağın Kapladığı Alan
Pre-Feasibility Studies	Ön Fizibilite Çalışması
Processing	Zenginleştirme
Public Report	Halka Açık Rapor
Reclamation	Islah Etme
Recognised Professional Organisations (RPOs)	Tanınmış Profesyonel Kuruluşlar
Recovery	Verim/ Kazanım
Relative Accuracy	Göreceli Doğruluk
Relative Certainty	Göreceli Kesinlik
Remediation	İyileştirme
Revenue Factor	Gelir Faktörü
Run of Mine	Tüvenan
Saleable Coal Reserve	Satılabilir Kömür Rezervi

Sampling Spacing	Numune Alma Aralığı
Scoping Studies	Kapsam Belirleme Çalışmaları
Slope Inclination	Şev Eğimi
Social Licence to Operate (SLO)	Madencilik için Sosyal Onay
Steam Coal (Thermal Coal)	Buhar Kömürü (Termal Kömür)
Stockpile	Stok
Stope Dimension	Yeraltı Topuk Boyutu
Tailing	Zenginleştirme Atığı
Tonnage	Tonaj
Total Liberation Method	Toplam Cevher Serbestleştirme Yöntemi
Transparency Principle	Şeffaflık İlkesi
Trench	Yarma
Vein Type Gold Mineralization	Damar Tipi Altın Cevherleşmesi
Ventilation	Havalandırma

APPENDIX 12- LIST OF ACRONYMS

BDDK	Banking Regulation and Supervision Agency of Türkiye
BİST	Istanbul Stock Exchange
CRIRSCO	Committee for Mineral Reserves International Reporting Standards
ETKB	Republic of Türkiye Ministry of Energy and Natural Resources
EÜAŞ	Electricity Generation Company
MAPEG	General Directorate of Mining and Petroleum Affairs
MTA	General Directorate of Mineral Research and Exploration
SPK	Capital Markets Board of Türkiye
TBB	The Banks Association of Türkiye
TKİ	Turkish Coal Enterprises
TOBB	The Union of Chambers and Commodity Exchanges of Türkiye
TTK	Turkish Hard Coal Enterprises
RPO	Recognised Professional Organisation
UMREK	National Resources and Reserves Reporting Committee of Türkiye
YERMAM	The Association of Geoscience, Mining and Metallurgy Professionals